



## JOURNAL

MAR.  
1891.

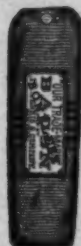
OF THE

MILITARY  
SERVICE  
INSTITUTIONWILLIAM L. HASKIN,  
Editor.Authors alone are re-  
sponsible for opinions  
published in the Journal.JAMES C. BUSH,  
Associate Editor.

I. OUR EXPERIENCE IN ARTILLERY ADMINISTRATION	Gen. Hunt	197
II. THE POWER OF THE SENATE	Gen. Fry	225
III. MUSKETRY	Capt. Chester	232
IV. MILITARY GYMNASICS	Capt. Foote	243
V. ON THE INCREASE OF THE NUMBER OF CADETS	Prof. Michie	246
VI. THE "OATH OF ENLISTMENT" IN GERMANY	Gen. Crawford	266
VII. THE FUNERAL CEREMONIES OF WASHINGTON		270
VIII. REPRINTS AND TRANSLATIONS		
1. A Summer Night's Dream (U. S. M., London.)	Capt. Gawne	273
2. Notes on Military Saddling (Colburn's U. S. M.)		287
3. Letters on Artillery, XIV (Hohenlohe)	Trans. by Major Haskin	295
4. Col. v. Löbell's Reports (Journal R. U. S. I., No. 154.)		308
5. The Resurrection of the Lance (Journal R. U. S. I. of India.)	Capt. Younghusband	316
IX. MILITARY NOTES		322
Modern French Artillery—Constructions in Iron and Cement—The New English Pack.		
X. COMMENT AND CRITICISM		330
I. "Military and Naval Pensions of the U. S."—(Fry.) II. "Meritorious Discharged Soldiers"—(Bloom.) III. "The Gyroscope and 'Drift'"—(Pettit, Gordon.) IV. "A Proposed Change in Artillery School Methods"—(Whistler.) V. "The Place of the Medical Department in the Army"—(Woodhull.)		
XI. REVIEWS AND EXCHANGES		349
"The War in the Crimea"—"Biographical Register U. S. Military Academy"—"The Indian Mutiny of 1857"—"Lectures on the Electro-magnet"—"A New Departure"—"New York in the War of the Rebellion"—"Rosen-garten's German Soldier" (second edition)—Contents of our Exchanges.		
XII. ANNUAL REPORT. ANNOUNCEMENTS.		363
XIII. HISTORICAL SKETCHES OF THE U. S. ARMY		369
The Eleventh Regiment of Infantry. (Capt. Patterson and Lieut. Irvine.)		

FOR THE  
HOME, CRUISE OR CAMP.

THE “FERRIS”  
DELICIOUS



Hams & Bacon

Regularly supplied to the U. S. Com-  
missary of Subsistence, New  
York City.

A little higher in Price, but of  
Unrivalled Quality.



*Opn Meigs*  
*25 July 91*  
**THE**  
**Norddeutscher Lloyd S. S. Co.**

**SHORT ROUTE TO LONDON AND THE CONTINENT.**

THE COMPANY'S FLEET OF

**FAST EXPRESS STEAMERS ON THE NEW YORK LINE.**

Consists of the following Magnificent Steamships,

<b>SPREE,</b>	<b>HAVEL,</b>	<b>KAISER WILHELM II.</b>		
<b>LAHN,</b>	<b>ALLER,</b>	<b>SAALE,</b>	<b>EIDER,</b>	<b>EMS,</b>
<b>WERRA,</b>	<b>TRAVE,</b>	<b>PULDA,</b>	<b>ELBE.</b>	

Of 5000 to 9000 Tons and 8000 to 13,000 Horse-Power.

The Norddeutscher Lloyd Steamship Company maintain a service twice a week between New York, Southampton and Bremen. Extra sailings during the travelling season.

Steamers leave New York every Wednesday and Saturday and land passengers at Southampton in less than 7½ days after leaving New York.

**L**ONDON is reached from Southampton by rail in about 2 hours by Special Norddeutscher Lloyd Trains and cars. Trains leave and arrive at the Waterloo station in London.

After landing passengers, mail and specie at Southampton, the steamers proceed at once without further delay to Bremerhaven, (the harbor of the Norddeutscher Lloyd fleet). The trip occupies about 24 hours.

Passengers are transferred to the railway train in waiting on the quay at Bremerhaven and reach Bremen 1½ hours from Bremerhaven.

**B**REMEN is a railway centre in frequent and direct communication with the interior of Germany, Switzerland, Austria, etc.

**P**ARIS can be reached by London & South-western Railway Co.'s steamers from Southampton to Havre.

The staterooms on these steamers are large and comfortable, the saloons, ladies' cabins and smoking-rooms beautifully furnished and decorated, and the cuisine equal to that of the best Continental Hotels. The galleys and kitchens are on deck, and the pantries immediately beneath them, connected by elevators, thus successfully preventing any kitchen odors from entering the saloon or staterooms. The steamers are commanded by experienced officers, who are picked men.

There is no overcrowding on this line. Number of passengers limited to seating capacity.

**Apply to OELRICHS & CO., 2 Bowling Green.**

**FOR HERNIA OR RUPTURE**  
**"GET THE BEST"**  
**THE IMPROVED PATENT**  
**CHAMPION TRUSS**



**COATED MALLEABLE STEEL SPRINGS**  
**GENUINE HARD RUBBER COVERED SPRINGS**  
**INDestructIBLE VULCANOID COVERED SPRINGS**  
SPECIAL MEDAL PHILADELPHIA CENTENNIAL - 1876 MEDAL NEW ORLEANS  
**GENUINE STAMPED PHILADELPHIA CO. MANUFACTURED BY CHAS. L. TRUSS AT PHILA.**  
**"SOLD BY LEADING DRUGGISTS AND DEALERS EVERYWHERE."**

# HONEST SOAP.

The Testimony of Half-a-Century.

---

## Pears' Soap

INDISPUTABLE EVIDENCE OF SUPERIORITY.


---

From **Dr. REDWOOD**, Ph.D., F.C.S., F.I.C.

Professor of Chemistry and Pharmacy to the Pharmaceutical  
Society of Great Britain.

**B**EING authorised by Messrs. PEARS to purchase at any and all times and of any dealers samples of their Soap (thus ensuring such samples being of exactly the same quality as is supplied to the general public), and to submit same to the strictest chemical analysis, I am enabled to guarantee its invariable purity.

My analytical and practical experience of PEARS' SOAP now extends over a lengthened period—**NEARLY FIFTY YEARS**—during which time—

 *I have never come across another  
Toilet Soap which so closely realises  
my ideal of perfection.*

its purity is such that it may be used with perfect confidence upon the tenderest and most sensitive skin—

**even that of a New Born Babe."**





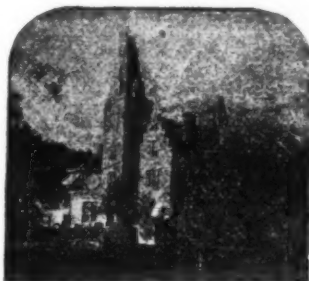
# BOLTON HOT WATER HEATER.

**BEST FIRE SURFACE**  
in proportion to grate surface.

ALL EXPOSED TO THE DIRECT ACTION OF THE FIRE.

**BEST RECORD**  
FOR THE  
**LONGEST TIME**  
In the Coldest Climate.

**Drop Tubes.** No other known device affords such extensive fire surface combined with  
**Vertical Circulation.**



*Residence of COL. DONN PLATT, Mac-a-hoe, O.*

HEATED BY BOLTON HEATER.

LIGHTED BY COMBINATION GAS MACHINE.

**FOR WARMING**  
the better class of  
MODERN HOMES,  
SCHOOLS,  
HOSPITALS,  
CHURCHES,  
GREEN HOUSES,  
ETC.

**EFFICIENCY,  
ECONOMY AND  
DURABILITY**

demonstrated to the satisfaction of interested parties.

PERFECT OPERATION  
ABSOLUTELY GUARANTEED.

## DETROIT HEATING & LIGHTING CO.

NEW YORK: 12 CORTLANDT ST.

CHICAGO: 88 LAKE STREET.

ST. LOUIS: 508 N. FOURTH STREET.

BOSTON: 42 PEARL STREET.

DALLAS, TEXAS.

308 WIGHT STREET,

Detroit, Mich.

*Manufacturers also of the COMBINATION GAS MACHINE,*

SEND FOR ILLUSTRATED BOOKS.

**Best Independent Lighting Apparatus.**

"WARMTH FOR WINTER HOME" AND "LIGHT FOR EVENING HOUR."

## UNIFORMS

**JOHN G. HAAS** ❖

**LANCASTER, PA.**

Well known to Army Officers for the  
past 13 years.

All Cloths used for Uniforms are of our own Importation  
and Guaranteed to give Satisfaction.

We have small expenses and our prices are accordingly.

—THE—

**Latest Novelties in CIVILIAN DRESS.**

Samples and prices and rules for measuring sent on application.

# JOHN PATTERSON & CO., TAILORS AND IMPORTERS

THE PATTERSON BUILDING  
Nos. 25 & 27 W. 26th Street,  
NEW YORK.



## MILITARY AND CIVILIAN DEPARTMENT.

*We beg to announce that we have obtained control of the business of the old house of Ackerman, Military Tailors, Established 1786. The reputation of Ackerman for the making of Officers' Uniforms is well known, and our own facilities for filling orders for civilian dress give us unusual advantages for supplying both to the officers of the Army and Navy.*

## LADIES' DEPARTMENT.

Riding Habits, Costumes, Ulsters and Coats cut and made in the newest and most proper form. Exclusive makers of the PRINCESS RIDING HABIT.

## LIVERY DEPARTMENT.

Importers for our own exclusive use of all colors, in Drab, Blue, Green, Brown and Oxford Mixed Box Cloths for Great-Coats; Devons for Body-Coats, Stockinettes and Kerseymeres for Breeches, and Valencias and Plushes for Waist-Coats. Also many specialties, such as the Green for Coaching Club and Country Club Harriers, and Hunting Pinks in weight for use both in the field and for full dress.

Our facilities for making Liveries and Hunting Outfits are too well known to require more than a passing mention.

JOHN PATTERSON & CO., 25 & 27 W. 26th ST., NEW YORK.







---

NEW YORK,  
March, 1891.

A genuine Irish Frieze Ulster, such as we sell for \$35.00, will stand the roughest kind of use and come up looking fresh each Winter for years. It's the most economical storm-coat a man can get.

We have other Ulsters of Chin-chilla and shaggy Beaver—\$18.00 to \$38.00. The highest cost are body-lined with black satin.

Cape Ulsters in plain black or fancy mixtures (\$15.00 to \$35.00) are also favorites.

"Macintoshes" are also coming into general use. A rain-proof coat that looks and wears like a cloth coat and that costs so little (\$15.00, \$18.00 and \$22.50), is sure to win success. Plain blacks or neat grey mixtures are preferred. Samples on request.

There is no difficulty about ordering. Whatever we send out is on approval, subject to return at our expense.

ROGERS, PEET & CO.

THREE } Prince,  
BROADWAY } Warren,  
STORES, } 32d St.

---

# INDEX TO ADVERTISEMENTS.

## Arms and Ammunition.

Lefever Arms Co.....	11 back.
Pratt & Whitney Co.....	13 "
Union Metallic Cartridge Co.	368 (a)

## Athletic Goods.

Spalding, A. G. & Bros.....	11 front.
-----------------------------	-----------

## Baking Powders.

Royal Baking Powder Co...	4 cover.
---------------------------	----------

## Boots and Shoes.

Cantrell.....	7 front.
---------------	----------

## Books.

Brentano's.....	14 back.
Col. T. A. Dodge.....	2 "
Spooner, George.....	2 "

## Brushes.

Murphy, Leavens & Co.....	8 back.
---------------------------	---------

## Canned Goods.

Armour & Co.....	20 front.
Cowdrey Co., E. T.....	9 back.
Fairbank Canning Co.....	18 "
Huckins, J. H. W.....	19 "
Libby, McNeill & Libby....	10 "
Richardson & Robbins.....	7 "
Underwood, Wm. & Co....	6 "

## Cereals.

F. Schumacher Milling Co..	16 back.
----------------------------	----------

## Chemists and Druggists.

Cabot, Samuel.....	9 back.
Parke, Davis & Co.....	368 (b)
Pleasants, C. H.....	16 front.
Shoemaker, Robert & Co....	3 cover.

## Cigars.

Brown, R. C. & Co.....	15 back.
Hazard, E. C. & Co.....	3 "

## Cleaning Materials.

Estate of P. Hayden.....	10 back.
--------------------------	----------

## Clothing and Equipments.

Haas, John G.....	3 front.
Heiberger, F. J.....	12 back.
Horstmann Bros. & Co....	13 "
Patterson, John & Co.....	4 front.
Rogers, Peet & Co.....	5 "

## Condensed Milk.

New York Cond. Milk Co..	16 front.
--------------------------	-----------

## Confectioners.

Huyler's.....	7 front.
---------------	----------

## Depositories.

State of Washington	
Depository of Securities.	17 back.

## Dry Goods.

Arnold, Constable & Co....	8 back.
O'Neill H. & Co.....	17 front.

## Engraving.

Moss Engraving Co.....	3 back.
------------------------	---------

## Groceries and Provisions.

Ferris, F. A. & Co.....	2 cover.
Simpson, McIntire & Co....	12 back.

## Hotels.

Grand Hotel.....	19 back.
Hygeia Hotel.....	8 front.

## Lamps.

American Belgian Lamp Co.	7 back.
Pittsburgh Brass Co.....	22 "

## Military Goods.

Shannon, Miller & Crane...	8 front.
----------------------------	----------

## Musical Instruments.

Wurlitzer Co., The Rudolph	18 back.
----------------------------	----------

## Outfitters, Gentlemen's.

Perego, Ira & Co.....	10 front.
-----------------------	-----------

## Photographic Outfits.

Anthony, E. & H. T. & Co.	19 front.
Scovill & Adams Co.....	6 back.

## Roofing.

Cortright Metal Roofing Co.	12 front.
Gum Elastic Roofing Co...	9 "
Merchant & Co.....	12 "

## Sanitary Goods.

Dr. Jaeger's Sanitary	
Woolen System Co....	1 back.

## Seeds.

Burpee, W. Atlee & Co....	16 back.
Critchell, B. P. & Co.....	17 "

## Soaps.

Pears'.....	2 front.
-------------	----------

## Stationery and Printing.

Clark & Zugalla.....	21 back.
Wilbur & Hastings.....	9 "

## Steamship Companies.

Norddeutscher Lloyd S. S. Co.	1 front.
-------------------------------	----------

## Stoves and Heaters.

Detroit Heating & Lighting Co.	3 front.
Pease, J. F. Furnace Co....	17 "
Richardson & Boynton Co...	20 back.

## Tobacco.

Blackwell's Durham Tobacco	13 front.
Lorillard, P. & Co.....	14 "

## Tools (Reloading).

Ideal Man'g Co.....	19 front.
---------------------	-----------

## Trusses.

Philadelphia Truss Co.....	1 front.
----------------------------	----------

## Typewriting Machines.

Lyon Manufacturing Co....	5 back.
National Typewriter Co....	17 front.

## Washing Materials (Starch).

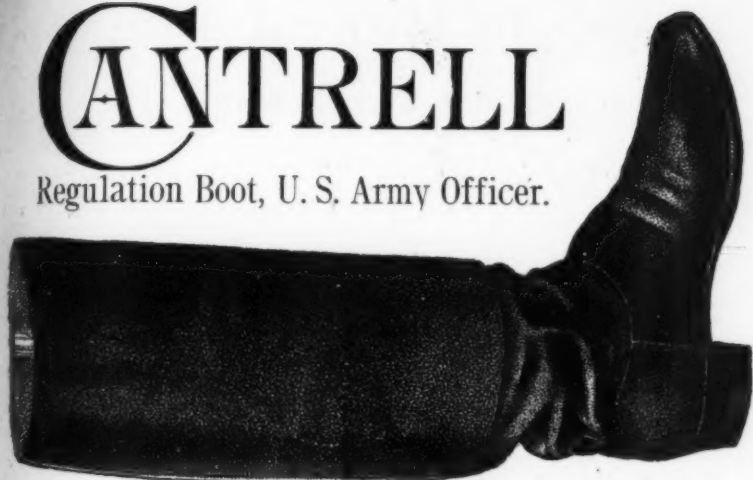
Kingsford, T. & Son.....	4 back.
--------------------------	---------

## Wines and Liquors.

American Vintage Co.....	4 back.
Dwyer, T. N. & Co.....	15 front.

# CANTRELL

Regulation Boot, U. S. Army Officer.



MANUFACTURER AND RETAIL DEALER IN

LADIES', GENT'S & CHILDREN'S  
Fashionable Boots and Shoes,

ESTABLISHED IN 1843.

—: Mail Orders Solicited:—

No. 25 East 23d Street,

George Cantrell.

Harrison H. Crane.

BETWEEN 5TH AND 6TH AVENUES,

NEW YORK.

---

*Kuyler's*

MAKERS OF

FRESH, PURE, DELICIOUS,

**BONBONS & CHOCOLATES.**

Fancy Baskets and Boxes suitable for presents.

863 BROADWAY, Between 17th & 18th St, New York.

Orders by mail receive prompt attention. Candies packed and sent by express to all parts of the country.

Use our COCOA AND CHOCOLATES, for eating, drinking and cooking. Pure, healthful.

SOLD BY GROCERS EVERYWHERE.

Shannon, Miller & Crane,

NO. 46 MAIDEN LANE,

NEW YORK.

---

**MILITARY • GOODS,**

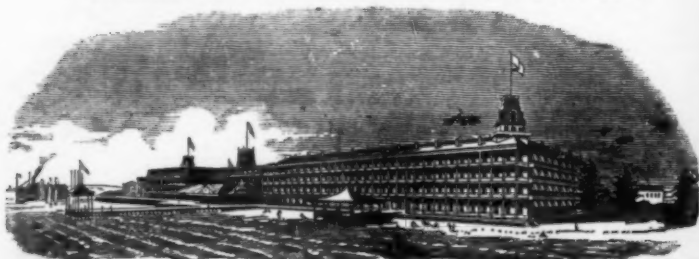
Equipments for Officers of the

**Army, Navy, National Guards, G. A. R. etc.**

Swords, Belts, Shoulder Straps, Caps, Embroidery, Etc.

---

«HYGEIA HOTEL. OLD POINT COMFORT, VA.»



UNSURPASSED IN APPOINTMENTS, TABLE AND GENERAL ATTENTION  
GOOD SAILING, FISHING AND DRIVING. SAFEST AND MOST DELIGHTFUL SURF  
BATHING ON THE COAST.

MUSIC TWICE A DAY BY ONE OF THE BEST BANDS IN THE COUNTRY  
NIGHTLY HOPS. FREQUENT GERMANS AND BALLS.

Presence of the North Atlantic Squadron of War Ships, Naval and Army Inspections, Sham Battles, Cannon and Rifle Target Practice, etc., to be a feature of the present summer.

Terms: \$3.00 per day, \$17.50 per week, \$60 per month and upwards.  
COOL OCEAN BREEZES, NO MALARIA, NO HAY FEVER.

Send for Descriptive Pamphlet.

F. N. PIKE, Manager.





## Cabot's Creosote Shingle Stains

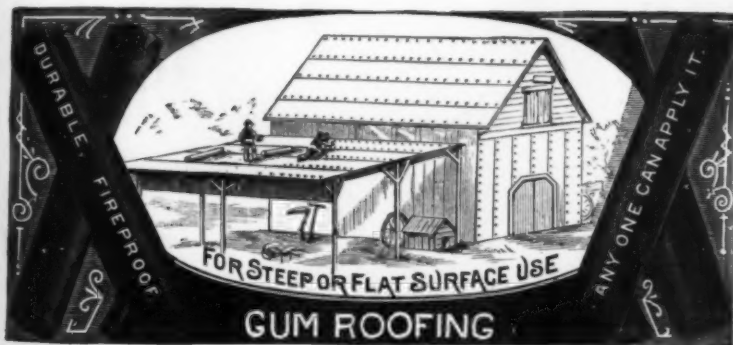
The Only Exterior Coloring that  
**DOES NOT BLACKEN.**

*They hold their soft, artistic coloring  
effect for an indefinite time.*

They have been largely used by the U. S.  
Gov't in the Life Saving Service.

For Samples on Wood, with book of Sketches  
and Circulars, apply to

**SAMUEL CABOT, SOLE MANUF'R. 66 Kilby St., Boston.**



### THE GUM ELASTIC ROOFING

**IS ABSOLUTELY NON-COMBUSTIBLE.** If painted it is **Guaranteed to last 10 years.**  
Costs only **\$2.00 per 100 square feet.** Strongly endorsed by New York Board of Under-  
writers. Send stamp for circulars, samples and particulars.

**GUM ELASTIC ROOFING CO., 41 West Broadway, New York City.**

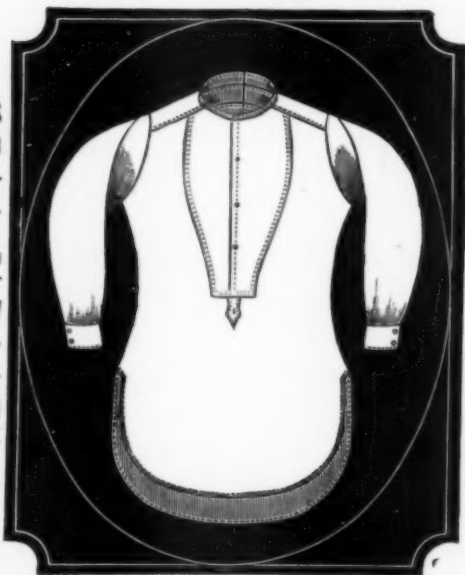
# Ira Perego & Co.

## Gentlemen's Outfitters,

### OUR CUSTOM SHIRT DEPARTMENT

Is in Better Condition than ever before to supply the demands of our Customers.

For Years we have done a large business in custom Shirts, and can confidently say that we always give satisfaction to our customers. We have



experienced cutters, and all goods are manufactured in OUR OWN FACTORY. We make only Fine Goods, for which we solicit your trade.

We also carry in stock a large line of shirts of our own manufacture. Open front or back with plain or embroidered bosoms. Prices \$1.00, 1.50, 2.00 and 3.00.

On receipt of 10 cents, we will mail a large catalogue of 100 pages and 400 illustrations to any address.

## Ira Perego & Co.

128, 130, 132 FULTON STREET—87 NASSAU STREET

NEW YORK.

**A. G. SPALDING & BROS.**

MANUFACTURERS OF

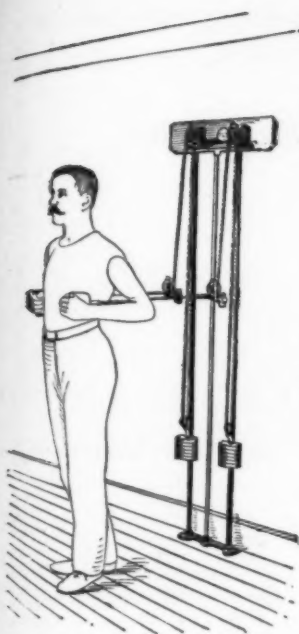
## Gymnasium Goods

### Apparatus

OF EVERY DESCRIPTION.

INDIAN CLUBS,  
DUMB BELLS,  
ROWING MACHINES,  
CHEST EXPANDERS,  
HORIZONTAL AND  
PARALLEL BARS,

STRIKING BAGS,  
PULLEY WEIGHTS,  
BOXING GLOVES,  
FENCING FOILS, Etc., Etc.



*The O. K. Peerless Pulley Weight Machine*, combining all the necessary exercise for the perfect development of the chest and body, the most simple and complete method for home exercise and training ever invented.

*Uniforms and Clothing* for all gymnasium uses. We are the *sole* agents for the genuine *Shaker Sweater*, a garment indispensable to the *athlete* and in the *gymnasium*. This *Sweater* has but to be seen to be commended as the most superior garment for this purpose in existence.

Use only the *Spalding* line of *Athletic* and *Sporting Goods*, the *standard* and *best*. Prices *always* reasonable.

Catalogues Free.

NEW YORK---241-243 Broadway.

CHICAGO---108 Madison Street.

PHILADELPHIA--1032 Chestnut St.



# "MERCHANT'S ROOFING"

"GILBERTSON'S OLD METHOD"  "CAMARET."

We not only give the purchaser the best Roofing Plates, but we protect him—

FIRST.—By giving our Guarantee.

SECOND.—By stamping each sheet with the Brand and Thickness.

THIRD.—By excluding Wasters.

FOURTH.—By branding the net weight of the 112 sheets on the box, to satisfy the customer (in this age of light-weight plates) that he is getting what he ordered.

For the benefit of those wanting the *very best* Roofing Plates, we *assert* and are *prepared to prove* that there are *no other brands* of roofing tin being offered in the market to-day, by any firm, *under the four different guarantees* given above by this house, and *we challenge a public contradiction* of this statement.

Our Book on A TIN ROOF and Specification Formulæ mailed FREE OF COST on application

MERCHANT & CO.,

Philadelphia. New York. Chicago. Kansas City. London.

## CORTRIGHT ROOFING.

METAL TILES AND METAL SLATES,  
RIDGE COPINGS, HIP COVER-  
INGS, VALLEYS, Etc.

*The MOST PERFECT SYSTEM OF ROOFING in existence.*

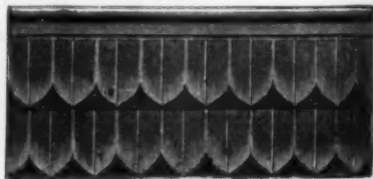
GUARANTEED TO BE ABSOLUTELY STORM-PROOF.

Made of all RELIABLE brands of PRIME CHARCOAL ROOFING TIN.

SAMPLES WILL BE FURNISHED FREE OF COST IF REQUESTED.



CORTRIGHT METAL TILES.



CORTRIGHT METAL SLATES.

Correspondence Solicited.  
If you want a first-class roof  
don't fail to write to

**Cortright Metal Roofing Co.,**

Broad & Hamilton Sts., Phila., Pa.

SOLE OWNERS AND MANUFACTURERS.



# BLACKWELL'S

"Bull Durham" and

GRANULATED

"Royal Cat's Eye"

PLUG CUT

## TOBACCOS

are the most honest, popular, uniform, reliable, satisfactory goods ever put upon the market. To smokers of granulated tobacco

### "BULL DURHAM"

needs no commendation, it having been known to the officers and soldiers of the United States Army for the past 20 years.

To smokers of Plug Cut goods we are offering our

### "ROYAL CAT'S EYE,"

a recent production, in the manufacture of which we have spared neither pains nor money to combine in it those qualities that insure a mild and delicious smoke.

One Post Commissary writes of "ROYAL CAT'S EYE,"

"The tobacco sent is of excellent quality and gives entire satisfaction."

Another writes, "It gives satisfaction."

Another writes, "It meets general approval as to its quality and fragrance."

THE NEW  
ARMY  
FAVORITE!  

---

LORILLARD'S  
'49  
CUT PLUG  
SMOKING TOBACCO.



# THOMAS N. DWYER & CO.,

40 BARCLAY STREET, NEW YORK.

Sole Agents in the United States and Canada for

CHANTECAILLE & CO.,	}	Clarets and Sauternes.
Bordeaux, France.		
JOBARD JEUNE & BERNARD,	}	Burgundies.
(LOUIS TITARD & CIE, SUCCESSIONAIRE). Meursault (Cote d'Or), France.		
V. de YSASI,	}	Sherries.
Jerez de la Frontera, Spain.		
J. J. V. VEGAS & CO.,	}	Sherries.
Jerez de la Frontera, Spain.		
CROFT & CO.,	}	Ports.
Oporto, Portugal.		
E. NORMANDIN & CO.,	}	Brandies.
Chateaufneuf près Cognac, France.		
VAN BERCKEL & CO.,	}	Parrot Brand Gin.
Delft, Holland.		
GEO. PHILLIPS & CO.,	}	Old Tom Gin.
(BY. ANDREW'S DISTILLERY.) London, England.		
GREENLEES BROS.,	}	Scotch Whiskies
Glasgow, Scotland.		

Special Importations of

JAMAICA, ST. CROIX and BAY RUMS,

IRISH WHISKEY in bulk and cases,

TARRAGONAS and MADEIRAS.

Société des Huiles d'Olive de Nice,

(ANCIENNE MAISON FELIX AUDEMARD.)

Extra Superfine Vierge Olive Oil,

FINEST OBTAINABLE.

Brands, "T. N. Dwyer & Co." and "Felix Audemard."

Patronized by the Officers' Club, U. S. Infantry and Cavalry School,  
Fort Leavenworth, Kansas.

SAMPLES AND QUOTATIONS FURNISHED ON APPLICATION.

# CHARLES H. PLEASANT'S New York Central Medicine Warehouse,

IMPORTER & MANUFACTURER • WHOLESALE & RETAIL,

57, 59, 61 W. Houston St. & 166 Wooster St., N. Y.

**RARE CHEMICALS, NEW REMEDIES, PATENT MEDICINES, FOREIGN  
& DOMESTIC MINERAL WATERS, SPONGES, CHAMOIS SKINS, &c.**

*Ready Mixed Paints and Painters' and Manufacturers' Supplies.*

**Pleasants' Malaria Pills.**

**Pleasants' Rheumatic and Gout Pills.**

**Pleasants' Purgative Bilious Pills.**

**Pleasants' Effervescing Nerve Salt for Headache, &c.**

**Pleasants' Lithia Water for Rheumatism, and Kidneys and**

**Pleasants' Pure Lofoten Cod Liver Oil. [Liver.**

**Pleasants' emulsion Cod Liver Oil with Hypophosphites, for Bone, Flesh and Brain.**

Our Prescription Department is perfect in appointment and inexhaustible in material and talent. Prescriptions sent to me by mail will be forwarded at my expense.

M. B.—Any specifications for Government supplies which Purchasing Officers may forward will be thankfully received.

**BUY ONLY  
THE BEST**



**THE GAIL BORDEN  
Eagle Brand Condensed Milk**

*Has maintained its high reputation for ABSOLUTE  
PURITY for over a QUARTER OF A CENTURY.*

**AS A FOOD FOR INFANTS IT HAS NO EQUAL.**

**FOR SALE BY**

**Grocers and Druggists Everywhere.**

# VENTILATING HEATERS.

HOT WATER.  
STEAM.  
AIR.

If you want the best  
systems for Residences,  
Churches and Schools,  
send for catalogue.

NEW YORK, J. F. PEASE FURNACE CO.,  
BOSTON, CHICAGO, SYRACUSE, N. Y.



## THE LARGEST ORDER THE U. S. GOVERNMENT

Ever placed for Writing Machines  
was for the

## "National" TYPE WRITER

Irrespective of Price, the Best and Most  
Complete Writing Machine Made.

Embodies every good quality found in other  
writing machines, and has many points of supe-  
riority, all its own.

Smallest and Most Comprehensive Double Case  
Finger Key Machine made.

**WRITES 81 to 85 CHARACTERS,**

Including Capitals, Small Letters, Figures, Punctuation Marks, Commercial Signs, etc., with only

**29 KEYS TO LEARN AND MANIPULATE.**

Entirely Portable. Weighs about 13 lbs. Occupies space of a Dictionary.

Perfect Manifold. More and Better Manifold Copies than upon any Machine Made.

**\$60**

Price, including Portable Office Case.

EVERY MACHINE WARRANTED.

Manufacturers and Sole Agents

**\$60**

**NATIONAL TYPEWRITER CO.,**

715, 717 and 719 Arch Street. - - - Philadelphia, Pa., U. S. A.

B. J. Woodward, Pres.

H. H. Uitz, V. Pres. and Mgr.

J. M. Butler, Sec. and Treas.

SEND FOR ILLUSTRATED PAMPHLET, GIVING FAC-SIMILE OF KEY-BOARD.

# The Military Service Institution.

## President.

Major-General JOHN M. SCHOFIELD, U. S. Army.

## Resident Vice-Presidents.

Major-General O. O. HOWARD, U. S. A.

Bvt. Brig.-Gen. T. F. RODENBOUGH, U. S. A.

## Secretary.

Major W. L. HASKIN, 1st U. S. Artillery.

## Treasurer.

Lieut. J. C. BUSH, 5th U. S. Artillery.

## Asst. Secretary and Vice-Treasurer.

Lieut. GUY HOWARD, 15th U. S. Infantry, A. D. C.

## Executive Council.

### Term ending 1897.

BATES, A. E., Major Pay Dept.  
HAMILTON, JOHN, Colonel, U. S. A.  
HUGHES, R. P., Colonel, Insp.-General.  
RUGGLES, G. D., Col. Adj't.-Gen'l's Dept., B.-G.  
SMALL, M. P., Lieut.-Col. Sub. Dept., B.-G.  
WOOD, E. E., Captain 8th U. S. Cavalry.

### Term ending 1895.

ABBOT, H. L., Col. Corps Engineers, B.-G.  
BARR, T. F., Lieut.-Col. D. J. A. G.  
HYDE, J. M. C., Capt., Q. M. Dept.  
LUDOR, R., Lieut.-Col. 1st U. S. Artillery, Col.  
MORDECAI, A., Lieut.-Col. Ordnance Dept.  
WETHERILL, A. M., Capt. 6th U. S. Infantry.

### Term ending 1893.

#### Finance Committee.

Col. MORDECAI.  
Col. SMALL.  
Capt. HYDE.

OTIS, E. S., Col. 10th U. S. Infantry.  
HUGHES, M. B., Captain 9th U. S. Cavalry.  
MIDDLETON, J. V. D., Major Med. Dept.  
SHALER, CHAS., Captain Ordnance Dept.  
TOMPKINS, C. H., Colonel A. Q. M. G., B. G.  
WEBB, A. S., Bvt. Major-General, (late) U. S. A.

#### Library Committee.

General TOMPKINS,  
Major HASKIN.  
Lieut. HOWARD.

## Publication Committee.

Generals ABBOT, RODENBOUGH, Colonels HUGHES, OTIS, and Lieut. BUSH.

## Branches.

### West Point, N. Y.

#### Vice-President.

Col. J. M. WILSON, Corps of Engineers.

#### Corresponding Secretary.

Lieut. M. M. MACOMB, 4th U. S. Artillery.

### Vancouver Barracks, Wash.

### Fort Leavenworth, Kansas.

#### Vice-President.

Bvt. Major-Gen. JOHN GIBBON, U. S. A.

#### Vice-President.

Bvt. Lt. COL. CARLE A. WOODRUFF, Capt. 3d U. S. Art.

#### Corresponding Secretary.

Capt. C. H. CLARK, Ord. Dept.

#### Corresponding Secretary.

Lieut. A. L. WAGNER, 6th U. S. Infantry.

## Membership and Dues.

(1) "All Officers of the Army and Professors of the Military Academy shall be entitled to Membership *without ballot* upon payment of the Entrance Fee."

(2) "Ex-Officers of the Regular Army, in good standing and honorable record, shall be eligible to full Membership of the Institution, *by ballot* of the Executive Council."

(3) "Officers of the U. S. Navy and Marine Corps shall be entitled to Membership of the Institution, *without ballot*, upon payment of the Entrance Fee, but shall not be entitled to vote nor be eligible to office."

(4) "All persons not mentioned in the preceding sections of honorable record and good standing, shall be eligible to *Associate Membership* by a *confirmative vote of two-thirds* of the members of the Executive Council present at any meeting; *provided*, however, that the number of these Associate Members shall be limited to two hundred. Associate Members shall be entitled to all the benefits of the Institution, including a share in its public discussions; but no Associate Member shall be entitled to vote or be eligible to office."

Membership dates from the first day of the calendar year in which the "application" is made, unless such application is made after October 1st, when the membership dates from the first day of the next calendar year.

"An Entrance Fee of Five Dollars (\$5) shall be paid by each Member and Associate Member on joining the Institution, which sum shall be in lieu of the dues for the first year of membership, and on the first day of each calendar year, thereafter, a sum of not less than Two Dollars (\$2) shall be paid as annual dues. Annual dues commence on January 1st in each year."

**NOTE.**—Checks, Money Orders, or Registered Letters should be drawn to order of, or addressed to, "The Military Service Institution," Governor's Island, New York Harbor. Changes of address should be reported promptly.



## A-HEAD IN POINTS OF SUPERIORITY.

*The Ideal Reloading Tools* are the recognized leaders. They have won that position in a short time by their many points of superiority. Enquire of those who have used them. Ask your dealer for them and take no others until you have seen them. If you desire to economize, have cheap and reliable ammunition. Reload your empty shells with the *Ideal Reloading Tools*. Illustrated circulars with descriptions and prices giving *Pointers* on how to prepare your own ammunition.

To all who are interested in Rifle, Pistol or Shot Gun Shooting and desire to economize by reloading their empty shells, we will send our illustrated circular containing descriptions and prices of *IDEAL RELOADING TOOLS* which will give them a few "pointers" on how to prepare their own ammunition.

### SPECIAL .45 CAL. BULLETS. IDEAL MOULDS FOR THEM.

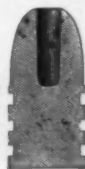
.45-500 Grs. with 4 or 5 Grooves.



Col. Pickett's.



.45-325 Express.



.45-320 Grs. Express.



.45-305 Grs. Solid.



.45-305 Grs. Solid.



.45 Cal. Armory Practice.

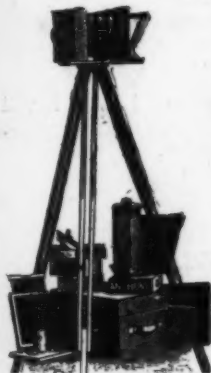
### REVOLVER AND MILITARY TARGET SHOOTERS

Prepare your own ammunition, then you know just what you have, and can depend on it.

Illustrated descriptive price list for all *IDEAL* tools, containing valuable instructions on how to prepare your own ammunition, mailed free on application.

MENTION THIS JOURNAL.

Address, *IDEAL MFG. CO.*, New Haven, Conn.



More than 45 Years in this Line of Business.

## E. & H. T. ANTHONY & CO.

591 Broadway, New York.

—MANUFACTURERS, IMPORTERS AND EXPORTERS OF—

## Photographic Instruments & Supplies.

DETECTIVE AND VIEW CAMERAS IN GREAT VARIETY.

Sole Agents for the Celebrated

**DALLMEYER LENSES.**

## ANTHONY'S • CLIMAX • FILMS

Reduce Weight and Space to a minimum.

14 Doz. Films weigh less than 1 Doz. Glass Plates.

**ANTHONY'S CHEMICALS THE BEST IN THE WORLD.**

Catalogue and Instruction Books in Spanish, Portuguese, French and English.



# ARMOUR'S

---

---

## EXTRACT OF BEEF.

---

---

The Best and Most Economical "Stock"  
for Soups, Gravies, &c.

---

---

**Awarded the GOLD MEDAL, Paris, 1889.**

---

---

ARMOUR'S EXTRACT gives tone and vigor to the weakest stomach, and acts as a delightful stimulant and invigorant in cases of weariness or fatigue.

Served as Clear Soup or Bouillon at Dinner or Lunch, it will be found to improve the appetite and aid digestion.

---

---

**USE THE CELEBRATED  
ARMOUR "STAR" HAMS AND BACON**

—AND THE—

Armour Canning Co's Delicious Canned Meats and Soups supplied  
by them to the Army and Navy Departments of the U. S.,  
Great Britain, France, Germany, Belgium, Hol-  
land and Switzerland.



JOURNAL  
OF  
THE MILITARY SERVICE INSTITUTION  
OF THE  
UNITED STATES.

VOL. XII.

MARCH, 1891.

NO. XLIX.

OUR EXPERIENCE IN ARTILLERY ADMINISTRATION.

BY THE LATE BVT. MAJOR-GENERAL HENRY J. HUNT, U. S. A.\*

[General Henry J. Hunt was Chief of the Reserve Artillery of the Army of the Potomac from its organization in the fall of 1861 until September 1862, when he became Chief of Artillery of that army with the rank of Brigadier-General of Volunteers, and retained the position until the close of the war. The brevet of Major-General was conferred on him in July, 1864. He became Colonel of the Fifth Artillery, April 4th, 1869, and was retired September 14th, 1883. At the time of his death, February 11th, 1889, he was Governor of the Soldiers' Home, Washington, D. C.]

WHEN, a year ago, Mr. Ropes requested me to write for your Society a paper on artillery with special reference to our Civil War, I was troubled. It was my desire to comply with his wish and collect information that might illustrate the peculiarities of the Army, and be useful in the future; but as the operations of field artillery are in the main auxiliary to those of other troops its annals are comparatively prosaic, especially when its action is controlled, not by its own officers, but by those of other arms. My answer was therefore unfavorable, as such a paper would be tediously historical and more critical than edifying. To this objection Mr. Ropes replied that such a paper as I described was just what was wanted, and sent me Major Crowninshield's instructive account of our cavalry.

\*A paper read before the Massachusetts Historical Society in 1888, and now published by permission of that society.

With such an excellent example before me I assented to Mr. Ropes' request. Another circumstance had its weight with me. A late general-in-chief once asked me why I did not publish my views as British officers did. I replied that "British officers had a large audience, that the profession was represented in Parliament, which, with press and people, were alive to any question that concerned the defenses of the Empire, and that they would force any useful suggestion on the attention of the military authorities: that such was not the case with us: our people cared little for these things, and if officers who brought such subjects directly to his notice were not listened to, their efforts to move him through the press would be idle."

Since that time your Society has done much by discussion and publications to awaken interest in military questions, and I felt that it was my duty to give you what little aid I could, at least what you asked for. All this is a sort of "plea in abatement" should I now trespass too much on your time or patience. The subject itself should be of special interest to all Massachusetts.

When Washington in 1775 sought the proper man to provide the material, as well as to command the Continental Artillery, his choice fell upon Henry Knox, a young Bostonian, who had given all the time he could spare from his business to the study of military subjects. That he had special aptitude and had studied to some purpose was soon made manifest. Washington states that most of the works constructed near Boston were planned by a few of the principal officers of the Army, "assisted by Mr. Knox." His services as a military engineer had been in almost constant requisition, and continued so until a competent head was found, in Du Portail, for that arm.

How well Knox performed the duties of Chief of Ordnance (the administrative branch of the artillery) the military history of the Revolution shows. As administrator and organizer he excelled; as a strategist he ranked high, and of Washington's generals was considered by many as second only to Greene. In fine, he possessed all the qualities required in a chief of artillery. Washington gave him the confidence, consideration, and support due to the position; and at the close of the war, as a consequence of this, our artillery was equal to that of either our ally or our enemy.

Before the Revolution, independent artillery companies had

been formed in various parts of the country. Some of these, notably those of Massachusetts, had served in the Colonial wars associated with companies of the Royal Artillery. Naturally their organization and customs, derived from the British, were transmitted to the Continental service.

The origin of modern artillery as an "arm of service," which is not generally understood, had an influence on its standing in many countries. The name artillery (*arcus-telum*) includes all weapons that strike from a distance, from the dart to the heaviest modern gun. As designating personnel it was applied originally to *fabricators*, not users.

As weapons grew into great and complicated machines, it became necessary that their constructors, who alone knew their power and how to use them, should serve with them in siege and field. They and their work, however, were rather looked down upon by the successors of knights and men-at-arms as base and mechanical; but as their services were indispensable, they themselves were finally recognized as semi-soldiers. This granted, the artillery and its sister service the engineers, soon made their designation "special arms" a title to respect. Yet less than a quarter of a century before our Revolution British officers at home, and abroad, refused to serve with them on terms of equality.

It seems that artillery and engineer officers were commissioned by the "Master-General of Ordnance," an outgrowth of their former position as constructors, and it was plausibly claimed that such commissions could not confer any rank. The King thereupon signed their commissions himself. This settled the question and gave them equality with officers of other arms; and it shows that British officers of the special arms had to struggle then, as ours do now, for the commonest of rights. One of our generals who visited Montreal about 1870 told me as something wonderful that the commandant of engineers as senior officer present actually commanded the garrison, or as we would say the "Post." We are only a century or two behind the English in this respect, and so far as the artillery is concerned would not be behind it at all if the President's commissions were respected by the War Department and its officials.

At the beginning of the Revolution, Massachusetts, as usual, took the lead and raised the first artillery regiment arrayed against the Crown. It was commanded by Colonel Richard Gridley, who had served with the British artillery with credit. He became unpop-

ular, the regiment was reorganized and placed on the Continental establishment with Knox as its colonel, who, as the arm increased, remained its easy chief to the close of the war.

At the risk of becoming tedious, some attention must now be given to peculiarities of artillery service, its special organization, and its modes of command.

Infantry and cavalry require the aid of artillery for special purposes; to destroy walls, earthworks, and other means of cover; to set fire to, or render untenable, farm buildings, villages, woods and other lodgments, etc. Its presence alone, if known to be powerful, often prevents an enemy from resorting to such defenses. Thus set free from its primary objects, the artillery is used in the open field to commence battles, to prepare the way and aid in attacks, to protect the movement of our own troops, and to hinder those of the enemy, to pursue and prevent the enemy from rallying, or to cover our own retreat. All these duties require special study on the part of the artillerist in order that, knowing exactly the power of his guns, he may apply it so as to produce the best results in the shortest time.

The methods to be pursued vary with circumstances, and must be learned by study and experience; *no man can know them intuitively*. Artillery should be used only against large bodies of men, rarely against small groups, never in cannonading individuals, which is too often done, especially if they ride white horses. Beside the artillery attached to army corps or divisions, for the foregoing purposes, a reserve is necessary for the general service of an army, to reinforce that of army corps in battle, to occupy positions, to protect the laying and taking up of bridges, and for other purposes. To this reserve is generally attached the "grand park" for ammunition and ordnance stores, for repairs, etc., and sometimes also the siege train.

What is called the moral effect of artillery is proportional, not to the noise it makes, but to its actual destructive effects. If these are great and sustained, artillery becomes a terror to the enemy, and a wonderful inspirer of confidence to its own troops, whilst ineffective practice, or its misapplication, tends to bring the arm itself into contempt with both friend and foe.

One certain and positive evil from its misuse is the waste of ammunition, the transport of which was so great a burden, that in the Army of the Potomac the ordinary campaign supply of 400 rounds per gun was reduced to 250, and stringent instructions given as to

its expenditure. Generals were prone to take the management of their artillery out of the hands of its own chiefs, and this sometimes produced amusing as well as vexatious results. A chief of corps artillery in the campaign of 1864, having warned his commander that their supply was being dangerously reduced in an unnecessary cannonade, was informed that the cannonade would be continued if it cost a hundred thousand dollars; and recently, in a speech made at a Gettysburg reunion, it was stated that when that gallant boy Cushing, during the great cannonade in which he was killed, applied for more ammunition, the chief of artillery replied: "Young man, are you aware that every round you fire costs \$2.67?"

As to organization, the minimum number and character of guns that can be made to suffice for the Army, is first determined; the number of batteries required for its ordinary wants is assigned to each army corps, organized as a brigade, and, so far as practicable, kept together under the command of the corps-chief of artillery; for concentration is conducive to instruction, discipline and economy. The rest of the artillery, from one-fourth to one-third of the whole, constitutes the reserve, and is also organized into brigades. To the reserve should be attached some regiments of foot-artillery to furnish the various supports, guards, escorts, and details of all sorts required for its marches and service, and to spare vexatious temporary details of infantry regiments for these purposes. The men of the foot-artillery are also instructed in the fabrication and use of siege material, and the construction of defensive works. They have full employment in camp, siege and battle. Such an organization greatly reduces the cares of a general-in-chief and the labors of an army.

As to the command of the artillery as a whole, it is exercised by its own commandant-in-chief under a special code of regulations designed to remove all difficulties, and yet secure full efficiency. He is attached to army headquarters for facility of prompt and habitual communication with the general-in-chief, whom he also accompanies in battle, except when he takes command of large artillery masses. All artillery orders are issued by him, or through his chief of staff. These are express provisions of the French code, and are in accordance with our ancient practice and present regulations, which are not however clearly expressed, or generally understood by the Army, the generals, or by the War Department itself.

Artillery brigades attached to army corps are subject to the orders of the respective corps commanders for march and battle, but their instruction, administration and supply of warlike stores are of necessity directed by the commandant-in-chief of the artillery, who centralizes the administration of the arm, commands directly all artillery not attached to other troops, and assumes that of the army corps also, when large masses are formed, or circumstances require a general direction. This is an absolute necessity, for he is the only common head of the different artillery commands.

I may here, and I hope without being accused of pedantry, since it is essential to a clear explanation of certain errors and their origin, digress a little in order to say that we have in our Army a bad habit of using military technical terms incorrectly, and regardless of their derivation and true meaning. This is a source of ever-increasing mischief, it misleads us even in reading foreign military works.

The accepted symbol of supremacy, for example, is a "staff." In the hands of a king it is called a sceptre, in that of a bishop a crozier, in that of a soldier a truncheon, baton, or "staff" simply, all three words here meaning the same thing, and he who carries it is by that fact recognized as the supreme military chief.

Thus Macaulay in his "Battle of Ivry:"

"Oh, how our hearts were beating, when at the dawn of day,  
We saw the Army of the League, drawn out in long array,  
With all its priest-led citizens, and all its rebel peers,  
And Appensell's stout infantry, and Egmont's Flemish spears.  
There rode the brood of false Lorraine, the curses of our land,  
And dark Mayenne was in the midst, a truncheon in his hand."

By extension, the awkward figurative term "General Staff" is used strictly, in northern Europe, to distinguish the body of generals who command the troops and direct *military* operations, as its expressive French equivalent "*état major-général*" implies. Trained officers of inferior rank to themselves, from colonels, the highest, down to lieutenants, are, under the title of "officers of the general staff" or staff officers, appointed to assist these generals. These inferior officers have no initiative of their own, they are mere organs, and must speak and act only in the names and in behalf of their respective generals, and orders thus given are as imperatively binding as if given by the general in person.

In our own Army we call the "superior class" *état-major* as a body. The "General Officers" give their proper name, "The General Staff," to their assistants, and under the idea that his "staff" is that on which he leans for support, absurdly include in this misnomer the administration, quartermasters, commissaries, paymasters, etc., whose functions are purely civil, with personal responsibility, through a War Department Bureau, to the Treasury, and not to the "truncheon."

Then because the functions of the engineers are in peace largely administrative, that corps is officially dubbed a "staff corps," whatever that may mean, for the corps has no staff duties whatever in war or peace, and its officers are forbidden by law to be ordered on or to assume any other than engineer duties, except by special direction of the President.

It would be a little too absurd just yet to call battery officers "staff officers," but it may come to that, for it has been decided that if a company of engineers under a first lieutenant serve with a company of infantry under a second lieutenant, the latter would command the whole, because the engineer as a "staff officer" is ineligible. From the engineer analogy, officers of artillery, above the rank of a battery officer, are now also claimed to be "staff officers" but with this difference, that whereas the engineer cannot command other than engineer troops, the artillery field officer cannot command those of his own arm, or, if a colonel, even those of his own regiment. Thus, one absurdity leads to other and greater ones.

To return to the immediate subject of artillery command. Its methods are prescribed by special rules which therefore may be varied by authority.

A few years since an effort was made in the French army to exclude artillery generals as specialists from exercising general commands. This was overruled, for being part of the general staff they had the same rights as cavalry and infantry generals. Then an effort was made to limit their rights of control to the disposal of only one-half the batteries of an army corps. This, too, was overruled since the general of artillery acts with a knowledge of the plans of the general-in-chief, or by his instructions. As a guard against evil from this source, however, a commander of corps-artillery must, before obeying them, submit the orders of his own chief to his corps commander, who can modify or countermand them. This demonstrates the ab-



surdity of the idea that the chief of artillery is the staff officer of the general-in-chief. If this were so all orders given by the former must be in the name of the latter and therefore obeyed. No discretion would exist. It would deprive the corps commander of the right to set aside any such orders, and free him also from responsibility for not doing so when circumstances actually required it. This system of command may have its inconveniences, may seem anomalous, but it is a necessity and must be accepted as such in order to avert worse evils.

The alternative is to attach to each army corps and the reserve all the artillery they might require in a campaign. This would double the number of guns in an army, vastly increase its expense, and add greatly to the impedimenta. Of two evils, the lesser is chosen, and the artillery is placed under special rules, subject to the command of its own chief, who, as Jomini says, "should be a strategist and a tactician as well as a specialist."

The same principles apply to the other special arm, and the military reputation which, at the close of the Crimean War, towered above those of all other generals, whether of the Russian, French, English, Sardinian, or Turkish armies, was that of Todleben, the Russian chief of engineers, who knew also how to adapt his specialty to the strategic and tactical needs of the army. In our service he would as a "staff officer" have remained in low rank, and been looked upon as simply a useful "assistant" to a general-in-chief, who probably knew nothing whatever of military engineering.

At the close of the Revolution but two companies of artillery were retained in service. In 1786 this number was increased to four. They served as infantry in the Indian campaigns, in addition manned the few guns used in these expeditions, and kept all the small arms in repair.

In 1794 the engineers and artillery were united in one regiment. In 1798 a second regiment of "artillerists and engineers" was raised, and DuPortail's warning, "if there be at the head of the department of artillery and fortifications many officers independent one of another, great inconvenience must result" has since been amply justified in the artillery.

In 1802 the two arms were separated. The engineers, growing by small accretions, have remained a single corps with a chief to direct it, and have risen to the highest point of professional excellence. Artillery regiments, without a common head, have







Henry J. Hunt

sunk to a lower level, and their character as a special arm has been redeemed from utter contempt only by the excellence of their personnel. With a similar organization to that of the engineers they would have rivalled that corps in excellence.

In April, 1808, a regiment of light artillery was authorized by Congress. On May 6th the Secretary of War directed Captain Peter's company, the first completed, to equip and mount two six-pounders, allowing him sixteen horses. The carriages were made by artillery artificers, and the section marched to Washington, where its manœuvres and salutes constituted the novel feature of a Fourth of July celebration, and excited enthusiasm, for they were something new to that generation.

Then followed a performance that may be cited as a type of the management to which, for want of an intelligent chief of its own, the artillery has been subjected from that day to this. In the following December Peter's battery was ordered from Fort M'Henry, Maryland, a station that furnished every facility for efficiency—excellent drill and practice grounds, abundant and cheap supplies of all kinds—to New Orleans, the worst and most expensive position that could have been found for it. The battery reached New Orleans in January, 1809. In June the Secretary of War wrote to General Wilkinson, asking him to put an end to the heavy expenditures. "Horses for the artillery," said he, "cannot be maintained at such cost; they must be sent to some part of the country where they can be maintained at one-fourth of the expense, or sold," etc., and Wilkinson soon reported: "Finding it impossible to maintain the light artillery horses on anything like the terms you stipulate, I have ordered them to be sold at vendue." Peter resigned.

Thus was mounted and dismounted the first light battery of the Army of the United States. It took less than a year for unskilled administration to utterly ruin it.

Early in 1812 the artillery was increased by two regiments. Amongst their officers were some of the ablest in the army. Izard, educated in the foreign military schools, was appointed colonel of one; and was succeeded, on his promotion to general, by Winfield Scott, who had been a captain of the Light Artillery regiment. Macomb, of the engineers, was made colonel of the other. But there was no common head to administer artillery affairs, and it was impossible under War Department management to give it efficiency. Here and there a battery like Towson's

distinguished itself; but, as in the Civil War, when artillery officers showed ability, they were transferred to other duties and their places filled by new men, so that General Dearborn wrote: "I am in want of experienced artillerists; whatever relates to our artillery and ammunition remains in a chaotic state for want of suitable officers." The break-down of Peter's battery deprived us of instructed officers of any grade for the War of 1812, and the country, as well as the artillery, suffered from it.

In 1814 there was a reorganization of the foot artillery into one corps of twelve battalions, six commanded by lieutenant-colonels, six by majors. There was no higher officer provided, and the idea of a corps, or body, without a head was unique. The contrast of the artillery of the Revolution with that of the War of 1812 was marked, and sufficient to settle the question of a proper organization for it.

In the army reorganization of 1821, the artillery was formed into four regiments of nine companies each, *one* of which was directed by law to be designated and equipped as light artillery; each company having a captain and four subalterns. The Ordnance was merged in the artillery, each regiment being allowed an extra captain specially for ordnance duties; and companies of artillery were stationed at the arsenals and armories.

A school of practice of eight companies was established soon after at Fort Monroe.

A few young officers were selected and sent to Europe to study foreign artillery. One of these was placed by the French government in the Ministry of War; another at the artillery school at Metz. Thus, the elements of an efficient artillery organization were provided, but there was one fatal defect,—the want of a chief to direct the whole service and regulate and control the various duties, military and administrative.

The natural result followed,—the "Ordnance Department" appearing in the Army Register in 1827 as a bureau, not of the artillery, but of the War Department. It soon complained, probably with reason, of the frequent change of officers, and, backed by other bureaus, asked for a separate organization. In 1832 a law was passed repealing so much of the Act of 1821 as merged the ordnance in the artillery.

One of the artillery officers who had been sent abroad, had brought back drawings, etc., of the modern material just adopted by the French. The new system was in principle that of the

English, but improved. Captain Towson of the Light Artillery had brought it to the notice of the Ordnance Department at the close of the War of 1812, but it was then rejected. It was now kept in abeyance until after the Ordnance had "emerged" from the artillery, when it was adopted. Great credit was afterwards claimed for this as the first fruits of the separation, and as the creation by the Ordnance of a system that the artillery was incompetent to produce. This claim seems to have been admitted by the other bureaus and the Army generally, in happy ignorance, or forgetfulness, of the fact that the new system originated with the British artillery, was perfected by the French artillery, was imported by our own artillery; and that modifications introduced by our Ordnance were not improvements, and had to be abandoned.

The companies of the Artillery School were employed as infantry in the Black Hawk and Florida wars, and thus ended the school.

In 1838 a company was added to each regiment, the number of subalterns reduced to three per company, the Ordnance was increased, and soon after the artillery was excluded altogether from the armories and arsenals. So ended its prospects of technical and practical instruction as foot artillery, except what could be got in firing a few rounds annually from sea-coast batteries.

The law of 1821 was so far observed that the light companies were designated, but they were armed and served as infantry until 1838, when Secretary Poinsett ordered them to be mounted, that of the 3d regiment under Bvt. Major Ringgold as horse artillery, the others under Captains Taylor, Washington, and Lieutenant Duncan as mounted batteries of three 6-pdr. guns and one 12-pdr. howitzer each. The duty at the time was not considered a very desirable one; the work was hard, the responsibility onerous, the pay that of infantry, the number of men and horses insufficient; but the batteries fell into good hands and soon became as efficient as the means furnished would permit. Captain, afterwards General, Robert Anderson of Sumter fame, translated the French drill book, which was revised in 1842, and at the instance of Major Ringgold, the British method of serving the gun was substituted for the French—an excellent change. The French system of battery manœuvres was fortunately retained.

About the same time General Scott directed that these bat-

teries should constitute schools of instruction and that the lieutenants should be changed annually.

In 1845 two of these batteries, Ringgold's and Duncan's, formed part of Taylor's little army of 3000 men, assembled at Corpus Christi soon after the annexation of Texas. They were received with a good deal of pleasant banter by the infantry and dragoons as being rather useless for field service in a wild country, and General Taylor himself looked upon them as a sort of "white elephant." The rapidity and simplicity of their manœuvres, however, soon attracted the attention of the other arms, and it was seen that these light guns could be taken wherever infantry and cavalry could keep their formation. There were but four horses to the carriage; both the guns and the carriages were very light, too light, indeed, the guns weighing but 640 pounds and the weight of the carriage was reduced in proportion. This was one of the Ordnance modifications that had to be given up, and the gun of 880 pounds and its heavier carriage restored.

General Taylor's force, 2300 strong, convoying large trains from Point Ysabel to Fort Brown, opposite Matamoras, met on the prairie of Palo Alto, May 8, 1846, Arista's Mexican army of from 6000 to 8000 men. After a cannonade and some infantry fighting on the right where Ringgold's battery was posted, and a cannonade between his own battery and the enemy, which set fire to the prairie grass; Duncan, on the left, who was full of dash and felt keenly the importance to the army of making an impression on our own army as well as on the Mexicans, got a glimpse through the smoke of a column of some 1500 Mexican infantry supported by cavalry, passing around our left to strike the supply train. Sending word to Colonel Belknap, his brigade commander, of what was going on, Duncan, without waiting for orders or supports, limbered up, passed by his rear around a burning copse, issued at full gallop from the thick smoke, and made straight for the head of the Mexican columns which halted in astonishment at this sudden apparition, thinking perhaps, that after the fashion of Mexican revolutionists, the battery was coming over to their side. Dashing up to 300 yards distance Duncan came suddenly into battery, one of his two sections being directed against the infantry, the other against the cavalry column. The Mexicans stood the cannonade for a time, but their formation presented heavy masses to a murderous fire at very

short range, and they finally broke up and fled, throwing their main line into disorder. This, and the rough usage received by another column trying to turn the American right, caused the whole Mexican army to draw off. Ringgold had been mortally wounded, and his first lieutenant, Randolph Ridgley, took command of his battery.

The next morning the Army advanced. As it passed over the battle-field it noted the destructive effect of Duncan's fire, and General Taylor was especially impressed, saying that he had no idea of such execution. He found the Mexican army in position two or three miles from the Rio Grande, at the Resaca de la Palma, a water-course then dry and crossed by the main road. On the further bank, astride the road, was the Mexican artillery well posted. A fierce fight ensued in the Chapparal, the issue of which for a time appeared doubtful. Finally General Taylor ordered Captain May to charge the Mexican artillery with his dragoons. On May's approach by the main road, Ridgley called out to him: "Hold on, Charley, till I draw their fire." Running his guns to close range, he opened, and drew a general discharge in return, on which May dashed across at a galop, sabred the cannoneers at their guns and captured General La Vega. A general charge promptly followed, the Mexicans broke and fled, closely followed by the dragoons and Duncan's battery, which pursued at a galop, and drove them headlong into the river, where many were drowned and many destroyed by canister fire. The rout was complete. The Mexican army which had crossed a few days before to the north bank in perfect certainty of success was fearfully cut up and demoralized, and our own troops correspondingly exultant.

General Taylor states in his report that had he been provided with pontoons he could have crossed the river at once, captured Matamoras, all the artillery and stores of the enemy, and a great number of prisoners; in short, that he would have entirely destroyed the Mexican army. He had applied in time for a ponton train, and explained that in a country of so many streams and no wood it was an actual necessity, but in vain. The ponton department at that time belonged to the artillery, but the artillery had no head, no director, no chief, no centre of administration, and was therefore paralyzed.

The ponton service was now transferred to the engineers by law, a train was soon organized and sent to the field; but it was



too late for the country in which its services were needed. It was stored in Vera Cruz and the company marched to the City of Mexico as sappers and miners, under the command of 1st Lieut. G. W. Smith, its second lieutenant being George B. McClellan.

In the two brilliant actions of Palo Alto and Resaca, all the subsequent battles fought in Mexico were half won, and the chief credit was ungrudgingly given both in the Army and at home, to the artillery.

At Monterey, where the next important battle took place, the Mexican army occupied the town, with strong works in the suburbs, and there was little opportunity for the field artillery on open ground. One notable feat, however, which hastened the surrender enhanced its reputation. Worth's division was sent round the town to seize the Saltillo road (the Mexican line of retreat) and operate if practicable from the west. The ground rose in this direction by a slope from the town to the summit of a high hill, which on the Saltillo side descended precipitously to the level of the plain. It was here difficult of ascent even for light infantry. Midway on the eastern slope, between the town and the crest, stood the "Bishop's Palace," a large stone structure which formed the Mexican outwork in this direction, and was considered impregnable to infantry, and unapproachable from the west by artillery. Worth ordered the hill to be scaled by infantry. Duncan hoisted his howitzer (its carriage being taken to pieces) and a supply of ammunition up the steep to the summit, remounted it, and, to the consternation of the Mexicans, made the palace untenable. The garrison was driven out and pursued by the infantry, the Saltillo road was cleared, and Worth's division closed in. The fate of the Mexican army was thus sealed, they were driven from house to house towards the great square of the Cathedral, and there compelled to surrender. Duncan had redeemed his pledge to take his guns wherever infantry could go.

But it was at Buena Vista that the artillery crowned its work in the Mexican War. Here, in February, 1847, whilst Scott's army was preparing to land at Vera Cruz, General Taylor, with a force of less than 5000 volunteers, the Regulars consisting of only three batteries and two squadrons, met in the open field and defeated four times his numbers led by President Santa Anna in person. At the close of two days' fighting the Mexican army,



reserves and all, were driving our troops before them. At a vital point General Taylor, with two guns of Washington's battery under O'Brien, tried in vain to stop the onset. The horses and men were all killed or wounded, and having fired the last gun with his own hands, O'Brien hobbled off, being himself wounded, and barely escaped capture. Captain Bragg, now commanding Ringgold's old battery (Ridgley having died at Monterey) seeing the imminent peril, left the position at which he had been posted and came up through the retreating infantry, under whip and spur, to General Taylor, who ordered him at once into battery. Bragg, with a rueful look at the retiring infantry, remarked as he was doing this, "I will lose my guns, for I have no supports." "Oh," replied Taylor, "Bliss and I will support you." The remainder of the story is best told in Taylor's own words, copied from his official report.

"The moment was critical. Captain O'Brien with two pieces had sustained this heavy charge to the very last, and was finally obliged to leave his guns on the field, his infantry support being entirely routed. Captain Bragg, who had just arrived from the left, was at once ordered into battery. Without any infantry to support him, and at the imminent risk of losing his guns, this officer came rapidly into action, the Mexican lines being but a few yards from the muzzle of his pieces. The first discharge of canister caused the enemy to hesitate, the second and third drove him back in disorder and saved the day. The services of the light artillery, always conspicuous, were more than usually distinguished. Moving rapidly over the roughest ground, it was always in action at the right place, and at the right time, and its well-directed fire dealt destruction in the masses of the enemy. While I recommend to particular favor the gallant conduct and valuable services of Major Monroe, chief of artillery, and Captain Washington, 4th Artillery, and Sherman and Bragg, 3d Artillery, commanding batteries, I deem it no more than just to mention all the subaltern officers. They were nearly all detached at different times, and in every situation exhibited conspicuous skill and gallantry."

There is no need of reciting the exploits of the artillery on General Scott's line from Vera Cruz to the City of Mexico, which sustained the already well-earned reputation of the arm. We may however pause a moment to acknowledge the debt of gratitude due by the artillery, the Army and the Country, to Secre-

tary Poinsett, to whose personal care and foresight it was due that we had any instructed field artillery, or even a drill book by which batteries could be trained; and to General Scott for making these batteries, when mounted, schools in which eight, or ten lieutenants in each regiment had received practical instruction before the Mexican War broke out. Nor were we less fortunate in the officers selected for such instruction, the names of a few of whom may still be recognized. Duncan, the ablest soldier of the Mexican War, Ringgold, Washington, Taylor, Bragg, T. W. Sherman, Mackall, Hays, Geo. H. Thomas, John F. Reynolds, Fitz John Porter, D. H. Hill, Stonewall Jackson, Darius Couch.\* With such names taken from a very short list of light artillery officers in Mexico, we cannot doubt that if allowed to do so the artillery would soon make itself either as an arm of service, or as a scientific corps, second to none in our Army, or in any other army.

Now one word as to the foot artillery. A siege train was formed for service at Vera Cruz and brought out by an Ordnance detachment. It was of the new model, which no artillerist present had probably ever seen. After the batteries were constructed by the engineers, and the guns placed in position by the Ordnance, details were called for from the artillery regiments, which were serving as infantry, to man them. Then was presented a curious spectacle. Officers of artillery regiments, which had been in service nominally as such for twenty-six years, were seen, pencil and paper in hand, devising a drill, and the next day their men receiving their very first lesson in the use of their arm whilst under a heavy cannonade. No comment is necessary.

At the close of the War the artillery was excellent. It had shown the stuff of which it was composed, the defects in its organization had been manifest, and it was assumed that these would be remedied, for Congress had responded to every official suggestion in its favor, had for instance in 1847 doubled the number of light batteries, and a bright future seemed before it.

Its hopes were soon blasted. The four new batteries were immediately dismounted, and soon after, temporarily, two of the old ones. It was also attempted to deprive them of their permanent designation and convert the details into "patronage."

\*Although General Hunt's modesty caused him to omit his own name on this list, his old friends will not forget that the honored Chief of Artillery of the Army of the Potomac served in all the battles on General Scott's line, and that he was there twice wounded and twice breveted for gallantry in action.—[PUB. COM.]

An effort was also made to oust the foot artillery from the fortifications, as it had been previously ousted from the armories and arsenals, and to transform it practically into infantry. These attempts were foiled, but a bill presented by General Shields, chairman of the Military Committee of the Senate, to reorganize the artillery and give it a chief, was defeated by official opposition.

General Shields then asked for and obtained, in spite of this opposition, a specific appropriation for remounting the four light batteries of 1847. This was granted on a square issue, made by the Secretary of War to decide if it was the intention of Congress to keep these batteries permanently mounted. The new Secretary of War delayed carrying out the law for months, and then, on the plea that the appropriation was insufficient for all four, refused to mount Magruder's battery, and sent the other three to remote expensive frontier posts where it was impossible to make or keep them efficient, and where even if efficient they would be useless. At the end of three years he dismounted them again.

The next spring Colonel Magruder applied to the incoming administration to mount his battery. The Secretary wished to do so, and being advised that there were funds available, a special credit for that purpose, Magruder was mounted. It was the old special appropriation procured by General Shields four years before. Receiving an application to remount the other three batteries, the Secretary hesitated. Permission was asked and granted to present the artillery side of this question through General Scott. A brief statement of the argument may be of interest.

The Minié rifle had just been tested in the Crimean War and pronounced the "Queen of weapons,"—the rifled cannon was as yet unknown. Straightway military sciolists rushed to the conclusion that the "improvement in small arms, whereby their range is greatly increased, must to a certain extent supersede the necessity for cannon of small calibre." To this it was replied, that when small arms were still further improved, so that they could demolish field-works and other cover, it would be early enough to consider how far they could replace artillery; that the tendency to resort to such cover would now be greater than ever, that heretofore artillery could take position beyond musket range and do this work in comparative safety, that such work must still be done, but under greater disadvantages, for it must be under infantry as well as artillery fire. Hence the legitimate result of the improvement in small arms was a necessity for a more num-

erous, powerful, and better instructed artillery. At this very time the Grand Staff added a permanent battery of eight guns to each Prussian army corps. As to open field fighting the whole adverse argument rested necessarily on the assumption that artillery could not contend with infantry within musket range. Yet at Buena Vista, when the Mexican army was sweeping our infantry regiments before it, Bragg's battery passed through them, and proved itself superior to our own infantry for defense, and to the Mexican infantry for attack, by driving the latter from the muzzles of his guns.

General Scott decided in favor of the artillery argument and the Secretary of War, on his recommendation, remounted the batteries.

In 1859-60 the light batteries were again relegated to remote stations, to worse ones indeed than in 1853; and under an ill-advised plan for extending instructions, much of the foot artillery was diverted from its proper stations and duties, so that when the Civil War broke out it was with difficulty that the two light batteries thus misplaced in Texas were saved from capture, and the others made available; and for want of their proper garrisons of foot artillery, Southern fortifications were lost. Injustice has been done to Mr. Floyd in this matter, for it has been attributed to him as an act of treasonable bad faith. It was in fact procured by a staff officer who was at the time in the confidence of the Secretary; and who afterwards rose to high rank and command in the Union Army. He was an excellent soldier, as honest and loyal a man as ever drew sword, and the country is indebted to him for great service; but in this matter he meddled with artillery affairs which were no concern of his or of his department, and about which he knew nothing.

Whilst the South had at the beginning of the war a better raw material for infantry and cavalry, the North had the best for artillery. It has been well said that "a battery carries with it all that goes to make up civilization." It requires many mechanics with their tools and stores, and also what are called "handy men," intelligent and self-reliant, for no two men at a gun do the same work. No country furnishes better men for the artillery proper than our northern, and particularly our New England States, and if, as in other armies, the best fitted for this service were assigned to it, we would lead the world in this arm.

In nearly all modern armies a distinct organization called the

"Train" formerly furnished drivers to all branches of the military service. A company of the train and one of cannoneers were united to form a battery, which, being the largest artillery force that could be controlled by a single voice, was the artillery unit, and the tactical equivalent of the squadron of cavalry, or battalion of infantry. Our own service, through necessity, improved this system. Having no organized "train" a company of artillery when mounted and converted into a battery had to furnish drivers from its own members. Frequent mounting and dismounting caused one of the artillery captains to devise a simpler system of instruction, adapted to our actual condition and arranged in progressive lessons, for the use of beginners. Omitting prescribed infantry and cavalry exercises it made the duties of cannoneers and drivers interchangeable. The system was adopted by the War Department just in time to meet the demands of our volunteer army, and enabled the batteries to take the field as soon as the infantry.

In 1857 the Ordnance Department prepared four gun-howitzers, of the new system devised by the Emperor Napoleon III., to replace all other field pieces, and issued them to one of the light batteries. This gun weighed 1200 pounds, was efficient for either shot or shell, and greatly simplified the munitions, instruction, and service. It was an improvement in the material, analogous to that in the personnel, and they together made the battery homogeneous.

This battery was on the extreme left at Bull Run where the artillery, mainly by the canister fire of the Napoleon guns and unaided by infantry, repulsed the Confederate attack under circumstances that stopped the pursuit of our defeated right at Cub Run. General Logan therefore claims that Bull Run was a drawn battle. Without going so far as this, we may safely claim that two or three batteries, a dozen guns, repulsed the attack of the enemy's right, disconcerted the operations of his whole army, and probably saved our own from destruction.

Our disorganized troops returned to Washington, and McClellan was immediately summoned from West Virginia.

One of his first acts was to appoint Major W. F. Barry his chief of artillery. A better choice could not have been made. Barry was one of Ringgold's original lieutenants, having then just graduated from West Point, and aided Duncan in organizing his battery, and was devoted heart and soul to this branch of the

service. He was chief of artillery of the Army of the Potomac in its Peninsular campaign, and occupied the same position in Sherman's campaign of 1864-65, being Inspector General of Artillery between these periods for all the armies, with his headquarters in Washington.

Charged with the artillery defenses south of the Potomac after Bull Run, I soon learned that, with the exception of the light 12-pdr. battery and a few rifled batteries, all our field artillery must be created.

Unfortunately we adopted a rifle gun of 3-inch calibre, the feeblest in the world; and our ammunition, of which there was no fixed system, was not good. With uninstructed gunners the best material is wasted; with poor ammunition the best gunners are at fault. Then the complication from which the Napoleon gun had relieved us,—a great variety of ammunition,—was brought back with the rifle-gun, for which different systems of projectiles, Parrott's, Schenkl, Hotchkiss and Ordnance, were supplied, which gave different ranges with the same charge of powder. These systems would get mixed in the same battery, and affect its efficiency. There was amongst the younger artillery officers a demand for the rifle-gun as the latest improvement, and it was urged by the Ordnance, but General McClellan wisely took the opinion of the older officers and directed that half the batteries should be light 12-pdrs. This gun held its own to the end of the war, and at the request of General Buford several of these batteries were equipped as horse artillery, because of their superiority at close range. With six horses to the piece they answered the purpose.

There was another matter that injuriously affected the artillery. It is admitted in all modern armies that it requires more time and instruction to prepare a man for artillery duties than for those of infantry or cavalry, but artillery demands for recruits were generally neglected until those of the other arms were supplied. Hence they were not furnished in sufficient numbers, nor in time to receive proper instruction, before the opening of a campaign, and the batteries were often dependent on the troops to which they were attached for temporary details to aid in serving the guns in battle. Yet with all the drawbacks, the batteries—I refer specially to those of the Army of the Potomac,—were pronounced by foreign officers, as well as by our own, to be "decidedly good." This was due to the zeal and devotion of the



battery officers and men, and the simplified system of instruction. Whilst few if any of them reached the high standard of the old batteries that served in Mexico, they did not lack other fine qualities that distinguished the latter. Whenever opportunity offered they exhibited equal courage, daring, and dash. They were just as ready to sacrifice themselves, and often did sacrifice themselves, for the benefit of the other arms. It is unnecessary to cite instances, the history of the war abounds in them, and Confederate official reports, and non-official writings, have given a generous and manly meed of praise to this arm of the Federal service.

But the conditions were very different in the Mexican and Civil wars. In the former the artillery acted almost invariably by single batteries attached to brigades, or small divisions. The commanding general communicated his plans, or orders, to his battery captain, and left him to execute his part of the work, in his own way, with the same freedom of action that other commanders possessed. The results were excellent, as was shown in the cases of Duncan at Palo Alto, and Bragg at Buena Vista.

In the Civil War the artillery commands were composed of masses, a single army corps sometimes had more field artillery than served in the Mexican War. The disproportion of the artillery of an army-corps to a single battery, was as great as that of a division of infantry to a regiment. It therefore required higher organization, higher grades of officers, with appropriate staffs, and more of them, than did the other arms. But the War Department wholly ignored the artillery, and left commanding generals to their own devices as to its organization. Nearly all the surviving artillery officers of the Mexican War, and many of the field officers of the arm, were assigned to other duties. The legal organization of the volunteer regiments provided for field officers, and the supply of generals for the large commands was left to the laws providing general officers for the whole army.

Let us now see what came of all this. General Barry told me that when at the War Department he stated that General McClellan asked in the beginning for but two artillery generals, one as chief, the other to command the reserve, leaving the selection of brigadiers to command the corps-artillery until field service indicated the proper selections; the Adjutant-General objected that the law always allowed one brigadier for four regiments, forty companies, and that the sixty artillery companies in

his army would not warrant the appointment of two generals. General Barry replied that a battery was not the equivalent of a company, but of a battalion; but the Adjutant-General's opinion as usual prevailed. The next year General Halleck held that a battery was equal to a regiment of infantry, that it was commanded by a captain, therefore could not need field officers, and it was directed in general orders that artillery should be taken into service by single batteries, "thus rendering the field and staff unnecessary." One cannot but feel a sympathy for the Department. It had really a hard question to decide. Here were the General-in-Chief and the Adjutant-General of the Army, the two highest military authorities, at issue; both were graduates of the Military Academy, and each was strong in his faith. Coin was out of circulation, so they could not "toss up" and settle the matter by "heads and tails," and it did not seem to occur to the Secretary to decide by drawing lots. So both principles were adopted, and to the end of the war the artillery was deprived of general officers, because the batteries were companies, and of field officers, because batteries were regiments. Of course, all promotions ceased in the artillery, and many accepted it elsewhere.

It followed, from the lack of both general and field officers with competent staffs for making their control effective over such extensive spaces as were covered by artillery masses, that there was difficulty in organizing and directing artillery commands. It is always an evil when bodies of troops, whose commanders are of equal rank, are placed as a whole under the command of one of them. The chief should always be of higher rank than those under his orders, and not merely the first among equals. It gives him weight and consideration everywhere, and doubles his value. "The king's name is a tower of strength." Now, as the few artillery field officers, at first mustered into service, disappeared by promotion, or casualties, the senior captain succeeded as such, and had to control other captains whose batteries were serving with his own, and as from time to time still other batteries joined whose captains had precedence of commission, the command of the whole body changed frequently, and instability was added to the other evils.

You have now amongst you an honored citizen, one of those who, as a captain, subject to all these drawbacks, admirably managed the artillery of his army corps, refused high promotion in



other arms, and at the close of the war was given the barren brevet, not of major-general, which he had earned, but of brigadier, the effective rank, to which, by the actual discharge of its duties, he had been entitled for years.

Every effort was made to remedy this state of things, but in vain. The War Department and the army administration turned a deaf ear to all representations, official and unofficial. Yet there was one easy way by which most of the evils could have been avoided. Immediately after the battle of Fredericksburg, I asked General Burnside to see President Lincoln and ask him to confer the artillery brevets recommended for the Peninsular and Antietam campaigns, and to assign the officers to me for duty according to their brevet rank; that this was asked not for the gratification of these officers, but because the good of the public service demanded it; that it would enable me to provide the corps and division artillery with chiefs of competent rank for their duties. General Burnside informed me on his return to the Army that he had done so, that the President acquiesced at once, saying that when at Antietam he had promised General M'Clellan that he would do this; and requested that when General Burnside saw the Secretary, he would ask him to have the commissions made out, which Mr. Stanton promised to do. But, unfortunately, General Burnside mentioned the circumstance to General Halleck that evening, who said it must not be done, and had it stopped.

The fact is that we were at the close of the Mexican War in the condition of European armies at the beginning of the Empire, and our military authorities did not understand the situation. An excellent French writer on artillery, Favé, says: "Down to that time the artillery had furnished examples, brilliant feats of arms, but they were isolated. It was almost always simple captains, sometimes a *chef d'escadron* who commanded, and gained glorious successes. In the higher grades the generals had been little more than the directors of large administration, henceforth they will be in command, and the artillery acting as a separate arm, gaining victories where success, if not impossible to the other arms, would at least have cost enormous sacrifices."

Almost the first notable instance of this change was a lesson given the French at the bloody battle of Prussick-Eylau, February, 1807. In infantry and cavalry the French and Russian

his army would not warrant the appointment of two generals. General Barry replied that a battery was not the equivalent of a company, but of a battalion; but the Adjutant-General's opinion as usual prevailed. The next year General Halleck held that a battery was equal to a regiment of infantry, that it was commanded by a captain, therefore could not need field officers, and it was directed in general orders that artillery should be taken into service by single batteries, "thus rendering the field and staff unnecessary." One cannot but feel a sympathy for the Department. It had really a hard question to decide. Here were the General-in-Chief and the Adjutant-General of the Army, the two highest military authorities, at issue; both were graduates of the Military Academy, and each was strong in his faith. Coin was out of circulation, so they could not "toss up" and settle the matter by "heads and tails," and it did not seem to occur to the Secretary to decide by drawing lots. So both principles were adopted, and to the end of the war the artillery was deprived of general officers, because the batteries were companies, and of field officers, because batteries were regiments. Of course, all promotions ceased in the artillery, and many accepted it elsewhere.

It followed, from the lack of both general and field officers with competent staffs for making their control effective over such extensive spaces as were covered by artillery masses, that there was difficulty in organizing and directing artillery commands. It is always an evil when bodies of troops, whose commanders are of equal rank, are placed as a whole under the command of one of them. The chief should always be of higher rank than those under his orders, and not merely the first among equals. It gives him weight and consideration everywhere, and doubles his value. "The king's name is a tower of strength." Now, as the few artillery field officers, at first mustered into service, disappeared by promotion, or casualties, the senior captain succeeded as such, and had to control other captains whose batteries were serving with his own, and as from time to time still other batteries joined whose captains had precedence of commission, the command of the whole body changed frequently, and instability was added to the other evils.

You have now amongst you an honored citizen, one of those who, as a captain, subject to all these drawbacks, admirably managed the artillery of his army corps, refused high promotion in

other arms, and at the close of the war was given the barren brevet, not of major-general, which he had earned, but of brigadier, the effective rank, to which, by the actual discharge of its duties, he had been entitled for years.

Every effort was made to remedy this state of things, but in vain. The War Department and the army administration turned a deaf ear to all representations, official and unofficial. Yet there was one easy way by which most of the evils could have been avoided. Immediately after the battle of Fredericksburg, I asked General Burnside to see President Lincoln and ask him to confer the artillery brevets recommended for the Peninsular and Antietam campaigns, and to assign the officers to me for duty according to their brevet rank; that this was asked not for the gratification of these officers, but because the good of the public service demanded it; that it would enable me to provide the corps and division artillery with chiefs of competent rank for their duties. General Burnside informed me on his return to the Army that he had done so, that the President acquiesced at once, saying that when at Antietam he had promised General M'Clellan that he would do this; and requested that when General Burnside saw the Secretary, he would ask him to have the commissions made out, which Mr. Stanton promised to do. But, unfortunately, General Burnside mentioned the circumstance to General Halleck that evening, who said it must not be done, and had it stopped.

The fact is that we were at the close of the Mexican War in the condition of European armies at the beginning of the Empire, and our military authorities did not understand the situation. An excellent French writer on artillery, Favé, says: "Down to that time the artillery had furnished examples, brilliant feats of arms, but they were isolated. It was almost always simple captains, sometimes a *chef d'escadron* who commanded, and gained glorious successes. In the higher grades the generals had been little more than the directors of large administration, henceforth they will be in command, and the artillery acting as a separate arm, gaining victories where success, if not impossible to the other arms, would at least have cost enormous sacrifices."

Almost the first notable instance of this change was a lesson given the French at the bloody battle of Prussick-Eylau, February, 1807. In infantry and cavalry the French and Russian

armies were about equal, but the Russians had a large preponderance of artillery. Augereau's corps found itself in the obscurity of a snow storm, entangled between the reserves of the Russian cavalry and infantry. The muskets of both armies were almost useless from wet, and Augereau's corps, kept in masses by Russian cavalry, was so torn to pieces by a battery of forty guns, that it was dissolved after the battle.

A few months after, at Friedland, Ney's corps found itself in a desperate condition, with heavy Russian masses in front and flank. The corps was falling into confusion, and Napoleon sent him a division with one battery, Ricci's, from Victor's corps, but it was too late, and these troops became entangled in the disorder and threatened rout. Fortunately General Senarmont, commanding the artillery of Victor's corps, had accompanied Ricci's battery, perceived the proper remedy, obtained Victor's consent, and, against the remonstrances of the division commanders, united their thirty-six guns, hurried them in a mass to close quarters, 400, 200 and finally 120 yards, and with great slaughter turned imminent defeat into brilliant success. Napoleon, watching events and seeing the movements of Victor's batteries, sent an aide to Senarmont to ascertain his purpose and warn him against rashness. Senarmont sharply replied: "Let me alone. I will answer for the result." By the time the aide had returned, Napoleon fully comprehended the matter, and when Senarmont's irreverent answer was repeated to him, smiled and said: "Well, he is a butt-head (*tête mauvaise*); let him alone."

It was a lesson to Napoleon himself, and two years after, at Wagram, he collected a hundred guns, which, under Drouot, his general of artillery, preceded the infantry and cavalry in a grand attack, and at close range silenced the Austrian artillery on a mile front, smashed his masses of infantry, and repulsed all cavalry charges with canister. This was with enormous loss to the artillery itself, but it disordered the enemy at a vital point, gave time for Napoleon to organize his attack, and to secure the victory.

In 1813, after the disaster at Leipsic, the retreat of the French army to the Rhine was barred at Hanau by a Bavarian army under Wrede, suddenly turned by the defection of its government from ally to enemy. Wrede's position commanded the outlet of a forest through which the French army must pass, and drove back all troops that attempted to emerge. The Emperor re-

ceived several reports that the passage was impracticable, and sent Drouot to examine into it. Drouot reported that with fifty guns, and two battalions of the Old Guard as supports, he could force the passage. Napoleon was doubtful, but consented. The work was thoroughly done and Wrede's army trampled under foot.

These instances are sufficient to show that a new era had commenced, and the time had come for the employment of artillery in large masses, as a separate arm, as well as an auxiliary for special purposes. The Franco-German War shows that the German Grand Staff recognized this fact, and accordingly their artillery was ever in the van, for their admirable cavalry always secured time for the development of the other arms.

We may now illustrate by incidents in our Civil War how this principle asserted itself, notwithstanding the failure of our "Grand Staff" to recognize it, or in any way to provide the means to secure its benefit.

At a conference of General Burnside with his grand division commanders to determine as to a battle at Fredericksburg and how it should be fought, I undertook to put the army across the river on certain conditions, one of which was that all the Napoleon guns of the divisions should be placed at my disposal for the purpose, to rejoin their divisions as they crossed the bridges. This created so much dissatisfaction and even remonstrance on the part of division commanders, who did not probably understand that all the artillery of an army is to be employed, when required for army purposes, under the general of artillery, that General Burnside at once abandoned an intention he had already formed on their suggestion, to break up the artillery reserve as soon as the battle was over, and distribute the batteries to the divisions. He now had the proofs before him that a strong artillery reserve, under the immediate command of the chief of artillery, was indispensable; for he could not rely on a prompt or cheerful acquiescence in calls on the divisions to supply its place when needed. The necessity in this case was absolute, because all the reserve artillery and the corps reserves were required on a long line of nearly five miles, in order to command the whole ground in front of us, including the town, and to control the movements of the troops on the plain.

After the bridges were thrown the army passed over, and each division as it entered the town took its batteries with it, although

not more than half a dozen could be employed there. The plan of battle was changed without my knowledge, and an attack ordered on the extreme right of the enemy, with only two divisions—Meade's supported by Gibbon's. The attack was resolute and for a time Meade was successful, but the supports were not sufficient; the enemy rallied and drove back both divisions, with heavy loss, Gibbon being wounded. Had I been informed in advance I could easily have drawn a hundred idle and useless guns from the town, where they blocked the streets, joined them to those on the plain, and supported by two of Hooker's divisions, then on the spot, left both of Franklin's corps free for the assault. I have little doubt that Franklin would have succeeded, and if so, it would have been a disastrous day for Lee's army. It appears to be settled that General Lee abstained from taking the offensive after this and the bloody repulses at Marye's Heights, partly from the belief that Burnside would renew his assault, but mainly because of our artillery force on Stafford Heights on the north side of the river.

Whilst this goes to show that the development of the Federal artillery accomplished its purpose, there is room to regret it. Stonewall Jackson, it appears, desired to take the offensive and "drive the Yankees into the river." Lee had a much larger force here than at Chancellorsville, but we had crossed in order to bring him to battle and would have welcomed such an attack—it probably would have resulted in a Federal victory.

Malvern Hill affords another instance of the power of artillery when acting in a mass, and of the importance of a large reserve, available for all exigencies that may arise. General D. H. Hill, in a recently published paper in the *Century*, says: "Our loss was double that of the Federals at Malvern Hill. Not only did the fourteen brigades which were engaged suffer, but the inactive troops, and those brought up as reserves too late to be of any use, met many casualties from the fearful artillery fire, which reached all parts of the woods for miles around. Hence more than half the casualties were from the Federal field pieces, an unprecedented thing in warfare."

All the disposable batteries of the reserve were here thrown in to reinforce the corps artillery, and we may remark that the forming of this powerful reserve by General McClellan had been much criticised. The night of this battle I was asked by a prominent officer of the War Department staff if it was true that



all the batteries of the reserve had been engaged that day. On being informed that on an average each battery had been sent out twice, and always when more artillery than that belonging to the troops was urgently needed, he expressed his surprise, and said that his opposition to the reserve would cease, for that day had proved the soundness of General McClellan's judgment. I may add that, with one-third of the guns in the Army, the reserve suffered in the Peninsula half the losses of the artillery in killed and wounded.

I have failed in my purpose if I have not made it clear that with proper organization and administration our artillery in the Civil War, good as it was, might have been more serviceable and produced greater results; that the War Department cannot manage it, and that its pressing need was, as it still is, a responsible chief for the whole arm, with a competent staff, military and administrative. The extent to which this would be centralizing and simplifying its administration may be illustrated by the condition of a single battery under the present system. In all that pertains to its personnel it is dependent on the Adjutant-General's Department; as to its guns, carriages, ammunition and harness, on the Ordnance; for its horses, forage and means of transport, on the Quartermaster's Department. The artillery driver, seated in an ordnance saddle, rides a quartermaster's horse, his bridles are ordnance, and he urges his off horse with an ordnance whip, his horse shoes are ordnance, the smith who sets them a quartermaster's man. I have known batteries to go unshod at distant posts, whilst the two departments were settling in Washington their respective responsibilities in the matter. Thus since it has no head of its own, the artillery remains dependent not only on the various headquarters and the War Department, but upon the concurrence of all these bureaus, failure in any one of which nullifies the work of the others; and among them all the battery suffers, sometimes breaks down.

That this still continues is a disgrace to our Army administration. During the whole War the principal evils and their causes were repeatedly called to the attention of the War Department, but in vain, and I will close now by repeating the concluding paragraph of my last official report as commander of the artillery of the Army of the Potomac. "I do not hesitate to say that the field artillery of this Army, although not inferior to that

of any other in our service, has been from one-third to one-half less efficient than it ought to have been, whilst it cost from one-third to one-half more money than there was necessity for. This has been due principally to want of proper organization, which has deprived it of the experienced officers required for its proper command, management and supervision; and it is in no respect the fault of the artillery itself."



## THE POWER OF THE SENATE.

BY GENERAL J. B. FRY, U. S. A.

WHILE James K. Polk was President, and William L. Marcy was Secretary of War, the following General Orders, No. 45 were issued:

GENERAL ORDERS, }  
No. 45. }

WAR DEPARTMENT,  
ADJUTANT-GENERAL'S OFFICE,  
*Washington, August 19, 1848.*

I...At the General Court-Martial which convened at the Castle of Perote, Mexico, on the 17th of June, 1848, pursuant to "Orders" No. 120, of June 16, 1848, from the Headquarters of the Army in Mexico, and of which Brevet Major A. S. MILLER, 1st Infantry, is President, was arraigned and tried Major of the on the following charges and specifications, to-wit:

### CHARGE I.

*"Drunkenness on duty."*

*Specification...* "In this; That Major of the U. S. Army, being field officer of the day for the 1st Brigade of the 2d Division of Regulars, did become grossly intoxicated and entirely unfit for the performance of his duties. This at the encampment of the Brigade aforesaid, near Perote, Mexico, on or about the 14th day of June, 1848."

### CHARGE II.

*"Conduct prejudicial to good order and military discipline."*

*Specification...* "In this; That Major aforesaid, being field officer of the day for the 1st Brigade, 2d Division of Regulars, did go to sentinels Nos. 3 and 4 of the Regimental Guard for the 2d Infantry, and having on a citizen's coat, and being without a sword or other marks to distinguish him as an officer, did order respectively said sentinels to call for the corporal of the guard; and did, without cause or provocation therefor, use gross and reprehensive language to the said sentinels, and to the corporal and sergeant of the Regimental Guard for the 2d Infantry, and did give to the said corporal and sergeant certain improper orders inconsistent with his duties as field officer of the day, evincing at the same time a gross state of intoxication, by staggering about, and sitting and lying on the ground. This at the encampment aforesaid, near Perote, Mexico, on or about the 14th day of June, 1848."

To which charges and specifications the accused pleaded "Not Guilty."

#### FINDINGS AND SENTENCE OF THE COURT.

The Court, after mature deliberation on the testimony adduced, find the accused, Major of the as follows :

##### CHARGE I.

*Of the Specification, "Guilty;" and*  
Guilty of the CHARGE.

##### CHARGE II.

*Of the Specification "Guilty;" except the last letter (s) in the word "sentinels," third line; the letter "s" in the word "numbers," same line; the figure "3" and word "and," same line; the word "respectively," sixth line; the last letter (s) in the word "sentinels," sixth line; the word "gross," seventh line; the words "to the said sentinels and," eighth line; the word "improper," tenth line; and the words "inconsistent with his duties as field officer of the day," eleventh line; and guilty of the CHARGE.*

And the Court do sentence the accused, Major of the  
"to be cashiered."

II...In conformity with the 65th of the Rules and Articles of War, the proceedings of the General Court-Martial in the foregoing trial have been transmitted to the Secretary of War, and by him submitted to the PRESIDENT of the United States. The President has been pleased to approve the same, and Major of the accordingly ceases to be an officer of the Army from this date.

III...The General Court-Martial of which Brevet Major A. S. MILLER is President, is hereby dissolved.

BY ORDER :

R. JONES,

*Adjt.-Genl.*

Heavy pressure was brought to bear upon President Polk to prevent him from approving the proceedings of the court-martial. Hon. (Major father) prepared a review of the case, to show irregularities, and disregard of law and justice which vitiated the proceedings. Mr. Jefferson Davis, who had gained military distinction at the battle of Buena Vista and had become a Senator of the United States, and other public men of great influence exerted themselves to have the finding and sentence of the court-martial disapproved, but without success.

It comes down by tradition, that at last Mr. Davis said to President Polk, in substance, "Well, sir, we will see whether you can defy the Senate of the United States." The President was

obdurate, and Major                      went out of the Army, August 19, 1848.

On the 4th of March, 1849, General Taylor succeeded Mr. Polk as President. Less than a week before, the following record was made in the Senate :

2D SESSION 30TH CONGRESS, WEDNESDAY FEBRUARY 28, 1849.

Mr. Davis, of Mississippi, from the Committee on Military Affairs to whom were referred the 12th of December last, the nominations of John S. Simonson, William W. Taylor, Andrew J. Lindsay, Julian May, Daniel M. Frost, William B. Lane, and Caleb E. Irvine, submitted the following report :

The Committee on Military Affairs, to whom was referred the nomination of Capt. Jno. S. Simonson to be major, August 19, 1848, vice                      cashiered, have considered the same and report : That having their attention drawn to the proceeding of the court-martial before which Major                      was tried, they called on the Secretary of War for a copy of the record of the trial of said Major                      , and find such irregularities and defects in the proceedings as, in their opinion, vitiate the sentence of the court.

The 64, 69 and 75 Rules and Articles of War require that General Courts-Martial shall consist of not less than thirteen members, when that number can be convened without manifest injury to the service, and that in addition to the members of the court there shall be a judge advocate appointed to prosecute in the name of the United States ; also, under certain limitations, to act as counsel for the prisoner, and who shall act under oath as specified in the 69 Article of War.

It is further prescribed that no officer shall be tried by officers of inferior rank if it can be avoided, nor shall any proceedings or trial be carried on excepting between the hours of eight in the morning and three in the afternoon, excepting in cases, which, in the opinion of the officer appointing the court-martial, require immediate example.

It appears by a statement of the Adjutant-General that in the corps d'armée, with which Major                      was serving, there were present 418 officers, and in the division to which he was attached 100 officers were present ; and the committee have not been able to ascertain why, when the re-establishment of peace had suspended all active operations, a full court could no

have been assembled to try a cause which involved the commission of an officer. Nor why, for such an offense as that for which Major                    was tried, the trial might not have been deferred until after the troops returned to the United States, and time and place gave opportunity for a regular, full and patient investigation. From the proceedings as submitted to the committee, it does not appear that the Judge Advocate of the court, acted under oath as required by the Articles of War, but, on the other hand it is plainly to be inferred that this necessary qualification for the discharge of his duties was either neglected or disregarded.

In the original composition of the court there were but seven members, all of them in lineal rank inferior to the officer to be tried, and that but three of them held the same grade by brevet. The sessions of the court were held at different encampments on the march from the City of Mexico to Vera Cruz; two members of the court were unable to keep up with its progress, and the trial continued at the subsequent meetings of the court with five members, of whom but two were (by brevet) of equal grade to the accused.

By special authority the court held its sessions without regard to hours, though by the Articles of War this is restricted to cases which "require immediate example" to be made. This justification cannot be offered in the present case, because whatever might be the opinion of the commanding officer, the sentence of the court could only be carried into effect after the approval of the President, and therefore the argument of immediate example could have no application.

To the defect of number, legal qualification and rank, is to be added the consideration that the court held its sessions amid the confusion of a marching column, and as appears by its proceedings, continued to investigate charges against the accused whilst he was laboring under ill health, and finally to sentence him, without granting him the brief delay he asked, to enable him to avail himself of the assistance of his counsel, an officer temporarily absent on detached service, in the preparation of his defense. All this in a state of peace and the profound subordination of a disciplined Army.

The commanding officer who ordered the court, in a letter of November 15, 1848, which was laid before the committee says, in relation to the propriety of having postponed the trial o

Major                      until a court of thirteen members could be convened: "I cannot pretend to say that this proposition presented itself to me in the precise form in which you have placed it." And again "I shall feel neither mortification nor regret should the fact on which I based my opinions prove upon examination to be incorrect; on the contrary it would be rather a source of gratulation should an error of mine in any degree contribute to the restoration of an officer to the service of his country, who but for one unfortunate weakness, which I feel assured he corrected, would be an ornament to any service." For all the reasons stated, and under the attending circumstances of the case, from all the evidence before them, the committee are of the opinion that Major                      should have had the benefit of the rules and forms of trial as provided for ordinary cases, and which were established by law to secure the rights and guard the honor of officers of the United States Army; that these have been omitted or disregarded to such an extent as to invalidate the finding and sentence of the court against Major                      ; and therefore, that properly, justly, legally, no vacancy such as is contemplated in the nomination under consideration exists, and recommend the adoption of the following resolution.

Resolved. That the nominations for promotion based upon the dismissal of Major

be and are indefinitely postponed, the proceedings of the court-martial which resulted in the dismissal of the said                      being in the judgment of the Senate, so irregular and contrary to direction of laws as to render the sentence of the court illegal, and therefore no vacancy has thereby been produced.

The report was read Friday March 2, 1849.

On motion of Mr. Davis of Mississippi the Senate proceeded to consider the resolution reported from the Committee on Military Affairs, the 28th of February, in relation to the nominations for promotion based upon the dismissal of Major                      and on the question to agree thereto.

It was determined in the affirmative (yeas 35, nays 12).

On motion by Mr. Bright, (the yeas and nays being desired by 1-5 of the Senators present), it was determined in the affirmative, yeas 35, nays 12.

Ordered that the Secretary lay the report of the Committee on Military Affairs on this subject together with the said resolution before the President of the United States.

On motion by Mr. Bright

Ordered that the injunction of secrecy be removed from the nominations of John S. Simonson, William W. Taylor, Andrew J. Lindsay, Julian May, Daniel M. Frost, William B. Lane and Caleb E. Irvine, contained in the message of the 12th of last December; from the report and resolution of the Committee of Military Affairs on the subject of the said nominations, and the case of Major \_\_\_\_\_ submitted the 28th February last, and from the proceedings of the Senate on the same.

The action of the Senate was followed promptly by the following:

GENERAL ORDERS, }  
No. 14. }

WAR DEPARTMENT,  
ADJUTANT-GENERAL'S OFFICE,  
*Washington, March 15, 1840.*

Promotions and appointments in the Army of the United States, made by the President, by and with the advice and consent of the Senate, since the publication of the Army Register, January, 1849.

學 園 學 報

WAR DEPARTMENT.

WASHINGTON, March 15, 1849.

The Senate of the United States having decided that the trial and conviction of Major \_\_\_\_\_ of the \_\_\_\_\_

were irregular and contrary to the directions of law, and that no vacancy arose therefrom; and the subject having been afterwards referred by the then Executive to the late Secretary of War, without any decision having been made thereon—the President, therefore, directs that Major

of the	be restored to his commis-
--------	----------------------------

The Adjutant-General will give the necessary instructions for the due execution of this order.

GEO. W. CRAWFORD,  
*Secretary of War.*

VIII. Major \_\_\_\_\_ will proceed to join his regiment and report for duty to the Commanding Officer without unnecessary delay.

IX. The restoration of Major \_\_\_\_\_ and the promotion and subsequent resignation of Captain Taylor, cause the following change in the grades and dates of the commissions of certain officers in the \_\_\_\_\_ from those borne on the Army Register published in January, 1849, to wit:

Capt. John S. Simonson, May 27, 1846. Commission of Major of August 19, 1847, expired March 3, 1849—the Senate having declared that there was no vacancy.

First Lieut. Andrew J. Lindsay, May 27, 1846. Commission of Captain of October 31, 1848, expired March 3, 1849—the Senate having declared that there was no vacancy.

First Lieut. Julian May, October 31, 1848 (promotion to same grade dated August 19, 1848, cancelled).

Second Lieut. Daniel M. Frost, February 16, 1847. Commission of First Lieutenant of October 31, 1848, expired March 3, 1849—the Senate having declared that there was no vacancy.

Second Lieut. William B. Lane, October 31, 1848 (promotion to same grade dated August 19, 1848, cancelled).

Bvt. 2d Lieut. Caleb E. Irvine, June 28, 1848. Commission of Second Lieutenant of October 31, 1848, expired March 3, 1849—the Senate having declared that there was no vacancy.

BY ORDER :

R. JONES,

*Adj.-Genl.*

It will be seen from the foregoing documents that the promotions resulting from the cashiering of Major \_\_\_\_\_ were sent to the Senate on the 12th of December, 1848, and were referred to the Military Committee. The committee "*called on the Secretary of War for a copy of the record of the trial of said Major \_\_\_\_\_*," and assuming that it possessed the right to review that record, the committee found "such inequalities and defects in the proceeding as in their opinion vitiate the sentence of the court." The committee's review of the case is thorough and contains no expression of doubt as to the Senate's power to review and confirm or reverse the action of a court-martial and the Senate by a vote of 35 to 12 sustained its military committee. Not contesting the right which the Senate asserted, the President, in conformity to the Senate dictum, made an order restoring a cashiered officer "to his commission and former rank in the Army," and changed "the grades and dates of the commissions" of the officers who had been promoted and appointed in consequence of the court-martial's action. In short, the record of the court-martial was called for and reviewed by the Senate, and the court's proceedings, finding and sentence, approved by the President, were disapproved and set aside by the Senate.



## MUSKETRY.\*

BY CAPTAIN JAMES CHESTER, U. S. A.,

THIRD ARTILLERY.

**M**ARKSMANSHIP has so monopolized the military mind in these days, that musketry seems to be forgotten.

Yet musketry is the autocrat of the battle-field. All other kinds of fire are preliminary or auxiliary. Musketry is supreme. But it has been neglected in the house of its friends until it has almost become a lost art.

The introduction of the rifle as a military arm, and modern improvements in the weapon have turned a good many heads. Some professional men even, believe that the days of musketry are over, and that future battles will be won by object-aimed-fire at long range. But men of experience know better. Musketry is still the mainstay of armies; and it will continue to play the leading rôle on the battle-field until gunpowder itself is mustered out. Sharp-shooting can never supplant it.

But musketry has been permitted to mark time too long. It has fallen behind in the march of improvement. No friendly hand has helped it, or tried to adapt it to improved weapons. It has sunk into the condition of a neglected child, a kitchen drudge, more accustomed to kicks than compliments. Let it be aroused. Let it kick off the shackles of the sharp-shooter and resume its independence. It has no cause to be bashful. It is an art that demands of its masters talent and skill of a high order. It is more difficult to acquire than marksmanship; more scientific and exact in its methods; and leads to more important results. Musketry and sharp shooting can never be rivals. They are different in everything; in their purpose, in their methods, and in the training they require. Both are essential in war, but musketry is the more important.

As between musketry and sharp-shooting, our Army seems to have made its choice. Every man who carries a musket and

\* Musketry, originally synonymous with Infantry, has come to mean "The fire of the line," and is used in that sense in this paper.

many who do not are either marksmen or they aspire to be. But there are no trained musketeers in the Army. In fact, the two classes are not recognized. It is different in most armies. The German, Austrian, Russian and Italian armies recognize and provide for the two classes in their organization. The French organization either contemplates an army of marksmen, or disbelieves in them entirely. There is no provision made for their separate employment; and while France has copied Germany very closely in her army organization, the Schützenzug has been left out. The English can hardly be called a military nation. They adhere to the old battalion just as we do, and have made no provision for sharp-shooters. But war would work a reformation there and here. Commanding officers soon learn how to utilize their material, and square men would be selected for square holes whether the organization recognized the selection or not. And this would be the more likely, as expert musketeers are rarely expert marksmen, and *vice versa*.

The ideal line of battle soldier is a trained musketeer. The ideal skirmisher is a trained marksman. There is no similarity between them. The marksman is about as fit for the duties of a musketeer as a cannoneer is for those of a cavalryman. The training of the musketeer should consist of drill at the manipulation of the musket, persisted in until he can deliver his fire horizontally and normal to his front with the accuracy and steadiness of a machine. Perfection would be attained when he can do so with absolute accuracy at the word of command. A soldier so trained is a musketeer, and, if it were not for variations in range, his efficiency in battle would be unimpaired, even if he were blindfolded.

As a matter of fact the soldier in the ranks might as well be blindfolded in battle. He sees nothing of it. Before the attack he is concealed, and during the attack he is surrounded by the darkness of Egypt. He cannot run to the nearest hill-top to get a look at things even when he has nothing to do; nor discuss the situation with those who can. He is tied to his place in the ranks, and absolutely ignorant of everything beyond his immediate neighborhood. People who have never had the experience are apt to overlook this fact, and even company officers fail to appreciate it. The ubiquitous reporter knows nothing of it, and the public are consequently uninformed. But the men in the ranks feel it, and many an honest old soldier has been ashamed

to confess his absolute ignorance of the battles in which he participated. But it *has* been observed and described, and I turn to the record the more willingly because, like the old soldier, I know so little of the occurrences beyond my own limited horizon on the battle-field, that my simple assertion of absolute ignorance might be oversalted by the audience.

General Palfrey in his "Antietam and Fredericksburg"—one of the *Scribner* series—says at page 166: "Those who have been in battle know how much and how little they saw and heard. They remember how the smoke, and the woods, and the irregularities of ground, limited their vision when they had leisure to look about them; and how every faculty was absorbed in their work when they were actively engaged; how the deafening noise made it almost impossible to hear orders; what ghastly sights they saw as men and horses near them were torn with shell; how peacefully the men sank to rest, whom the more merciful rifle-bullet reached in a vital spot; how some wounded men shrieked, and others lay quiet; how awful was the sound of projectiles when they were near hostile batteries; how incessant were the singing and whistling of the balls from rifles and muskets; how little they commonly knew of what was going on a hundred yards to their right or left." He virtually admits that the reality exceeds his descriptive powers, and appeals to the personal experience "of those who have been there." And he was a colonel. What would he have written if he had been in the ranks?

General Palfrey belonged to the Army of the Potomac. Let us call a witness from the West. General Force says in his "From Fort Henry to Corinth"—also one of the *Scribner* series—while describing the attack on Pugh's Brigade at the battle of Shiloh, page 151: "Pugh's command remained still until the lines advancing over the open field were near. Then rising, they poured in a volley, and continued firing into the smoke until no bullets were heard whistling back from the front. The two Kentucky regiments poured in their fire upon the flank, and when the smoke cleared away the field was so thickly strewn with bodies that the Third Iowa, supposing it was the hostile force lying down, began to reopen fire upon them."

Here we get a glimpse of real line of battle work, and every soldier who has been there knows it is not exaggerated. Pugh's men remained concealed until their assailant was within effective range. They then rose and delivered their volley, and continued

firing into the smoke. What chance was there for individual marksmanship? Absolutely none after the first volley; and very little then for it was a volley fired at the command. There was no lingering over the alignment of sights on that occasion we may be assured. In fact there was no place for marksmen on either side in that attack. But trained musketeers would have been invaluable, nay were invaluable, for Pugh's men were musketeers. Rifle sights were worthless in such a contest. The fighting was at point blank. The stream of bullets was turned on in a horizontal direction and normal to the front, and continued until "no bullets were heard whistling back from the front." And that is a fair sample of line of battle work.

It has been said—and the saying is within the truth—that it takes a man's weight in bullets to put a single enemy *hors-de-combat*. To the uninitiated that seems shocking bad shooting, but the survivors of Pugh's brigade could explain it. It was all owing to the smoke. If there had been no smoke there would have been less expenditure of ammunition—waste some people would call it. But it was not waste. The line had to be maintained. There were men in the cloud of smoke trying to break it; so a stream of bullets was turned upon the cloud and kept up, as long as there was evidence of any men remaining in it. To have ceased sooner would have been unwise, and might have lost the line.

Line of battle shooting, like that of Pugh's brigade, can never be eliminated from actual battle. It is the battle. All other kinds of shooting are mere by-play—preliminary or auxiliary. There is no objective aiming in line of battle shooting. It is a contest between monsters, vomiting musketry upon each other in the dark. Steadiness, general direction, and volume are the winning cards. Line of battle shooting is a special art, and requires a special training, a special arm, the strictest discipline, and eternal drill. Men must be drilled until they become machines, and then drilled to keep them so, before they are fit for line of battle work. Drill is the great preparation. Even musketry instruction must be given in the shape of drill. It is not the intellect, but the fingers of the soldiers that are to be educated. The muscles must be exercised in doing certain things in certain ways, until it becomes as natural and easy and uniform as winking. There must be no shooting from the left shoulder because the man was born left-handed; no straddling of the legs for steadiness; no

pet position for the left hand. Everything must be done in the prescribed way, and every soldier must be exercised in doing it, until it becomes almost impossible for him to do it in any other way. A well-drilled soldier is not one who simply knows his drill, and can execute it correctly when he gives it his attention, but one who can execute it correctly without thinking, and would find it exceedingly awkward to do it any other way.

A well-drilled army is a mighty machine. British infantry has a high reputation for steadiness and valor, but it is all due to the drill-sergeant. Frederick the Great fell heir to the best drilled army the world ever saw, and established a reputation as the greatest tactician of his age. But the drill-sergeant helped him to his greatness. Musketry was his principal weapon, but drill was the secret of his success. If we would study Frederick more and Napoleon less we would have clearer views on the value of musketry, and know more about the training essential to its development.

That drill and the drill-book are only means to an end, and that that end is not display, is too often overlooked. There is too much of the barrack-yard and too little of the battle-field about them. The end ought to be everything. It should be subserved but not superserved—if I may be allowed to coin a word. No unnecessary movement should be admitted to the drill-book, and no unnecessary motion to the manual of arms. The drill-book should be reduced to its lowest terms, and then rubbed in until the muscles know it. If we would make musketeers we must drill them, on smooth ground, and rough ground, at the few essential movements, and the few essential motions of the manual, until perfection is reached.

We do not propose to discuss the broad question here opened up: What should be admitted to the drill-book? The subject is too extensive for our limits. But we may and must inquire, What is the autocratic end that must be subserved by the drill-writer and the drill-master? The answer is: Efficiency in battle. Efficiency in battle is the end and object of every kind of drill and training which the soldier undergoes. But what constitutes efficiency in battle? That is a hard question, and volumes might be written in reply. But we want a concise answer here. Short answers often make up in force for what they lack in fullness. To answer in a single word then, and if I may be allowed to coin one for the purpose, I should say *controllability*.

If the movements and actions of every organization and individual in an army can be controlled by the proper authority, under the conditions of actual battle, the army is efficient. Controllability then is the end and object of everything in the drill and the drill-book, and any system of drill or training that contemplates the relinquishment of control in any degree over the acts and movements of every soldier in the line of battle, is to that extent defective. Absolute control and perfect controllability are the aggregate of efficiency on the battle-field—using the word aggregate in its military sense—and the object of all military training.

We now turn to our legitimate subject, Musketry; the fire of the line; the weapon with which Frederick and Wellington won their victories. It was the principal weapon of war in their day, and it has been growing in power and importance ever since. Musketry in their day was a stream of bullets thrown, at the word of command, in a horizontal direction to the front. The direction and elevation of the stream could be varied within limits at the will of the commander, but as a rule they were normal. The musketry of to-day is exactly what it was then, only the volume and velocity of the stream have been increased. To make musketry effective, requires the co-operation of officers and men. The former are responsible for the direction and elevation, and the latter for the steadiness and accuracy of the stream. Accuracy as here used, has no reference to aiming at an object. The musketeer has nothing to do with aiming at an object. But he must deliver his fire accurately in the direction, and at the elevation prescribed.

Mahan in his "Field Fortifications," page 8, in discussing the angle of defense, says: "In the heat of action the soldier, from his position behind the parapet, naturally brings down his piece in the act of firing in a position sensibly perpendicular to that of the interior crest." Now this natural tendency manifests itself in the line of battle also. Any soldier in line of battle will naturally deliver his fire normal to his front, and a well-drilled musketeer will do so with almost absolute accuracy. But it would never do to trust to natural tendency alone; it must be supplemented. The musketeer, the company, the battalion, must be drilled persistently, until their muscles respond to the command accurately. When the muskets of a battalion are all brought accurately to the horizontal, and normal to the front, at

the word of command, the first great lesson in musketry is learned. That this can be done accurately and promptly will be shown farther on.

The second great lesson teaches how the musket is directed at any prescribed elevation, and normal to the front, at the word of command.

There are only two more lessons in the musketeer's manual of marksmanship, and they are of minor importance. They teach accuracy of direction and elevation in the oblique firings. Oblique fire is resorted to when a slight change of front is impossible or inexpedient, as, for instance, to assist an adjacent part of the line in repelling an attack. The occasion for its employment is of course determined by the commander. The only new element in oblique fire is its obliquity, generally  $45^{\circ}$  from the normal. As lines of battle will consist of single rank in the future, accurate obliquity may be obtained most readily by a half face. The fire would then be direct.

It will be observed that the object is entirely omitted from the musketeer's marksmanship. So far as he is concerned there is no target. His art consists in firing his musket in the prescribed direction and at the prescribed elevation, accurately and promptly at the word of command. He never looks beyond his gun.

But there is an object on the battle-field, and it is of the utmost importance that it should be hit; so important in fact that the aiming cannot be entrusted to the soldier. Who ever saw a fire-engine at work without being struck with the importance of the man at the nozzle. In the battle that is then being waged between water and fire, it is his judgment that directs the stream. There may be a chief somewhere, who assigns positions and gives general directions, but the man at the nozzle directs the stream.

So it is with the commander of a unit on the line of battle. So far as his machine is concerned he controls and directs the stream. He is at the nozzle. He decides when the stream shall begin to play, and what shall be the direction, and elevation. With a word the machine is thrown "in gear" as it were for the desired direction and elevation, and with another word the stream is started. He watches the effect from a convenient vantage point. If the object is reached, so good. The pumps are kept working a steady stroke until the object disappears or changes its position. In the former case *cease firing* brings the machine



to rest. In the latter a word will change the elevation up or down a notch or two, and the man at the metaphorical nozzle follows the object with the stream.

That is the way to fight a battalion and there is no blazing away about it. Judging distances and aiming must not be entrusted to the men. The smoke makes it impossible for them to do so, and excitement would render their judgment worthless where there was no smoke. No two men will judge distances alike even on the drill ground, and if they are permitted to do so in battle the stream of bullets, which should be compact and withering will be disseminated into the harmless dribble of a watering pot. To be effective it must be compact. To be compact it must be controlled by one mind. There must be one man only at the nozzle.

Few will dispute the effectiveness of musketry so managed. If the fire of a battalion can be so controlled and directed in actual battle it must be effective. But can it be done? How can the officer be responsible for the aim? How can the soldier direct his piece at an object which he is not supposed to see?

Before answering these questions a word must be said about the musket. A musket is a machine for utilizing the explosive force of gunpowder in throwing small projectiles at high velocities. Rifling is a refinement intended to give the projectile steadiness in its flight, and the breech-loading machinery, an arrangement to simplify the operation of loading. The stock, lock, barrel and breech machinery make up the machine. The sights, front and rear, are no part of it. They are adjuncts intended to assist the marksman in his work. The musket would be a musket without them. The marksman needs them; let them remain on his musket. The musketeer has no use for them; remove them from his.

But although the musketeer has no use for rifle sights, he needs aids to aiming as much as the marksman does. Natural tendency and military training may insure a delivery of fire normal to the front; but how is horizontality, or elevation to be obtained. When the battle is hottest and the smoke thickest—when he is in a position like that of Pugh's Brigade—and the colonel commands "zero, aim, fire," how is he to know when his gun is horizontal.

For this I propose that a small spirit-level be set in a recess in the stock immediately under the position of the eye in aiming.

It should be hinged at one end, and controlled at the other by an elevating screw. The elevating screw should be on the right side, behind the lock plate, and in addition to controlling the elevation of the spirit level, should carry an index finger over an arc, graduated both ways from zero, in arcs equivalent to 100 yards of range. The whole apparatus should be so adjusted that when the index is at zero, and the bubble at the middle of the tube, the barrel of the musket is horizontal. There are some refinements which might be added. The elevating screw should click in passing every graduation, and run to zero every time the gun is fired. Setting the elevation would then precede every fire, and might be incorporated in the command. The graduations to the right, or plus side of the zero would be marked with the numerals from 1 to 6, and would indicate elevations. Those to the left or minus side would be depressions. At the commands "Plus 4, Aim, Fire," every soldier would, at the first command, turn his elevating screw to the right until it had clicked 4 times; at the second bring his gun to the shoulder and raise or lower the muzzle until the bubble of the level comes to the middle of the tube, and hold it there until, at the third command, he fired the piece. The act of firing would automatically set the index at zero again, so that every volley would have to be preceded by the command for elevation, and would soon become as natural as cocking the piece. Then the colonel would have complete control of the fire of his battalion.

In the days of Frederick and Wellington the deadly zone hardly extended to a hundred yards, and musketry was never fired above the horizontal. The musketeer was exercised in aiming at the horizontal until he could assume that position with perfect ease and reasonable accuracy at the word of command. He needed no level to assist him. Every inch of space between him and his enemy was deadly ground. As the lines closed perhaps the colonel would caution "Aim Low"—but as a rule the fire was horizontal.

But now the deadly zone extends to 400 yards, and the danger zone to thrice that distance. The musketeer and his commander have more to do than formerly. Distances must be judged, and elevations given at every shot. To be sure, the apparatus described above would simplify the work to be done, and make it easy for the soldier. He has no thinking to do. But the colonel would be comfortably busy in an attack. As a rule he will have

nothing to do with distances beyond the deadly zone. The danger zone is the field of the sharp-shooter, and must be taken care of by the skirmish line. When, however, the skirmishers are driven in, and the hostile line enters the deadly zone, line of battle work begins. The colonel, and every field officer will soon become experts in distance estimation. They have only 400 and 300 yards to fix in their eye. Two hundred will be about point blank or zero, and 100 minus one. If the battle-field was horizontal their work would be simple enough. Where the field is irregular the colonel's judgment will be considerably taxed. But he has only about 400 yards of ground to judge, and has time enough for deliberation. He marks the point where the hostile line will come under his fire. It may, and generally will be at a different level. That difference must be determined.

To do this a man—the colonel himself if he chooses—aims a musket at the position in question, and while he holds it at the aim he turns the elevating screw until the bubble comes to the middle of the tube. The reading on the elevating arc is the angular difference between the positions. The algebraic sum of this and the angle for the estimated distance is the elevation required. For instance if the reading was minus one, and the estimated distance four, the true elevation would be plus three. In other words the position of the enemy when the attack opens is on ground so much lower than the defender's, that the elevation required for a 300 yard range on a horizontal plane, will carry the bullet 400 yards down the declivity.

In moving to the attack the first elevation would be deliberately determined in the manner described, on the skirmish line, before the attack commenced or the troops showed themselves. Having reached the position, the line halts and fires perhaps several volleys; and the colonel watches the effect, and if necessary corrects the elevation. He can ride to some favorable point from which he can see and judge. Having got the range to his satisfaction, the advance through the smoke begins, and when the colonel thinks a hundred yards has been traversed the elevation is changed. The firing is steadily maintained until assaulting distance is reached, and is perfectly under control all the time. No matter if the men stand shoulder to shoulder or stand apart.

One word more about the musket. With the simple elevating attachment described, the musket becomes a very useful instrument, or rather collection of instruments. Not only is it a

weapon, but a musketeer's quadrant, a clinometer, a hand level, and a contouring instrument. For reconnaissance work no better level could be devised.

But enough has been said to give an idea of what musketry really is, and what a line soldier's musket ought to be, and when the sharp-shooting fever has subsided the ideas here advanced may be deemed worthy of some consideration. Immediate results are not expected.

## MILITARY GYMNASTICS.

BY CAPTAIN MORRIS C. FOOTE, U. S. A.,

NINTH INFANTRY.

ON the 17th of February last a circular order was issued by the commanding officer of this depot, in compliance with instructions from the War Department, directing that the companies be instructed and drilled in gymnastic exercises. The provisions of the order required all recruits to be so drilled one hour a day during the first month of their enlistment. Drills to take place in barracks and out of dress according to the nature of the exercises and the state of the weather. A supply of dumb-bells, bar-bells and Indian clubs were purchased at once from the Canteen fund, and the good work commenced. Shortly after this an unoccupied barrack building was set apart as a gymnasium and fitted up, so far as practicable, with parallel bars, mattresses and chest weights.

The men all took an interest in the exercises from the first, and this interest does not seem to flag. In each company a non-commissioned officer is selected and placed in charge of the drill. Maclaren's excellent book, "Physical Education," has been supplied and the body movements, and dumb-bell exercises described therein adopted. Also many of those used in course at West Point. The recruits are required to wear barrack shoes; blouses and suspenders are removed, and if necessary heavy shirts, and everything done to give free play to the arms and muscles. At first the commanding officer laughingly complained that the men were bursting out their blouses.

To say that the results are beneficial would be almost absurd, as every one of ordinary intelligence is aware of the fact that gymnasium exercises and athletic sports, when not overdone, are of the greatest benefit, especially to young men of the average age of recruits. But in addition to the well-known results, attention can be called to the fact that the gymnasium is sure to be one factor, and not an insignificant one, in the problem of decreasing desertions.

Most old company commanders can verify the statement that the deadly monotony at a majority of the posts, the daily unchanging routine of company and squad drill, guard, fatigue, etc., is one of the great causes of desertion. The average soldier grows tired of it, and seeks a change. There being very little to prevent his desertion, having the sympathy of most of the citizens in his vicinity, knowing that the chances of his apprehension are remote, and his punishment if apprehended light, he deserts. Now, gymnasium drill furnishes a very agreeable change from the ordinary tiresome routine of squad and company drill; it can be varied so much, that it partakes more of the nature of a recreation than a drill, in fact it is so considered, I think, by many of the men here. A few minutes can be devoted to the "tug of war," "leap-frog," and other games. Among the more supple, tumbling, vaulting, hand-springs, etc., are indulged in. Often a gymnast is developed who could compete favorably with the professionals in exhibitions, and for a few minutes the men are intensely interested watching such performances. It can readily be seen how all this interests the men; furnishes them pleasant occupation for a portion of their time, improves their health and spirits, keeps them more contented; (thereby taking their minds away from the desire for change and the consequent desertion) strengthens their muscles,—thus enabling them to handle their rifles and drill better—in fact makes better men of them in all ways and therefore better soldiers.

From my own observation of the successful working of the system here, I am satisfied that it is of great importance that gymnasiums should be established at all permanent posts, and gymnasium drill be a part of the daily course. The advantages as shown here are apparent already in various ways, in the improved appearance of the men, and their own statements that they feel better after exercising, the more contented tone that seems to prevail, and the apparent gain in arm and chest measurement. On the 14th instant an order was issued by the commanding officer requiring *all* recruits, during their entire stay at depot, to be exercised one hour each day in the gymnasium. The building used here is not large enough and not fitted to contain many appliances that would be useful, but will do until the necessity is understood, and the proper appropriations made, to erect and equip a regular building, such a building could of course be so constructed that it could be used as an amusement hall, chapel, etc.

I inclose tables showing the results in increased size of arm and chest, of one of the classes, after a month's work; the measurements were made under the supervision of a commissioned officer.

TABLE OF MEASUREMENTS OF GYMNASTIC SQUAD OF COMPANY  
"C" OF INSTRUCTION, GEN. SER. RECRUITS.

Names.	Measurements taken June 11, 1890.			Measurements taken July 11, 1890.			Increase for Month.		
	Fore- arm.	Upper arm.	Chest.	Fore- arm.	Upper arm.	Chest.	Fore- arm.	Upper arm.	Chest.
James Mason....	10 in.	10½ in.	32 in.	11 in.	11½ in.	34½ in.	1 in.	1¼ in.	2¼ in.
Henry H. Clay...	10½ in.	12 in.	33 in.	11½ in.	12½ in.	34½ in.	¾ in.	½ in.	1½ in.
Fred. M. Barton...	10½ in.	12½ in.	33½ in.	10½ in.	12½ in.	33½ in.	1¼ in.	½ in.	½ in.
Michael Curtin...	10 in.	11½ in.	34 in.	10½ in.	12½ in.	34½ in.	½ in.	¾ in.	½ in.
Foster J. Bodo...	10 in.	11½ in.	32½ in.	10½ in.	12 in.	33½ in.	½ in.	½ in.	1½ in.
John Hanley.....	10½ in.	10½ in.	34 in.	10½ in.	11½ in.	35 in.	1¼ in.	¾ in.	1 in.
George Rott.....	10½ in.	11 in.	34½ in.	10½ in.	12 in.	35½ in.	¼ in.	1½ in.	1¼ in.

	Fore- arm.	Upper arm.	Chest.
Largest gain....	1 in.	1¼ in.	2¼ in.
Lowest gain....	¼ in.	¼ in.	½ in.
Average gain....	½ in.	¾ in.	1½ in.



## ON THE INCREASE OF THE NUMBER OF CADETS.\*

BY PROFESSOR PETER S. MICHIE,

U. S. MILITARY ACADEMY.

THOSE of you who were present at the Graduates' dinner when General Grant made the only lengthy speech of his life, will recall that his text was that which I have taken for my subject to-night. The sturdy and compact figure of that great and modest soldier, standing near the main doors of the Mess Hall, the simple, expressive language in which he clothed his ideas, and the earnestness of his manner are vivid memories, never to be forgotten by those of us who were present on that occasion. He was well aware of the importance that would be attached to the words he might utter on this subject—a subject of which he was a recognized master, and when he expressed as his opinion that the number of cadets should be increased to 1000, it was evident from the applause that followed that his audience were in complete accord with him. Since that night I have thought much upon this subject and have the honor now to present the result of my reflections for your consideration and criticism.

The primary object for which the Academy was established, and the reason for its continued existence is to supply trained officers for the Army of the United States in time of peace and war, to set aside from the great mass of citizens a select number of young men, who are to devote themselves to the study of the Art of War for the benefit of the nation, and who are to hold themselves ready at all times for its service. As a compensation for this service and its attendant sacrifices, the people assign to the profession of arms an honorable social distinction, and a reasonable support for life. The Military Academy, the nursery of the officers of the Army, may now be considered firmly established in the confidence of the people, although at one time just previous to the Mexican War its existence was continued by a majority of a single vote. The conduct of its graduates in that

\* Read before the West Point Branch, M. S. I., November 20, 1890.

war and subsequently in the War of the Rebellion has established it upon a secure foundation so that it may be now regarded as a permanent institution of our country.

Different opinions may be held as to whether it be desirable to extend its functions. If it be restricted merely to preparing a sufficient number of young men to fill the vacancies that yearly occur in the ranks of the commissioned officers of the Army and no more, then it is doing its full work completely and well; but if in addition to this its scope be extended to conserve the military spirit and education of the country, and be itself the source and exemplar of these, then it but partially fulfills its mission. The following paper is written in conformity with the latter view.

Let us first examine into the relation of the number of graduates of the Military Academy to the population of the country from its establishment to the present time.

The following table exhibits the ratio of graduates to the population from the beginning of the century, the epoch of its establishment, viz.:

Year.	Population.	Number of graduates.	Graduates per year.	Average population for 1 graduate.
1810.....	7,239,881.....	52.....	6.5.....	1,120,000
1820.....	9,633,822.....	209.....	20.9.....	460,000
1830.....	12,866,020.....	307.....	36.7.....	350,000
1840.....	17,069,453.....	430.....	43.0.....	400,000
1850.....	23,191,876.....	435.....	43.5.....	533,000
1860.....	31,443,321.....	394.....	39.4.....	800,000
1870.....	38,558,371.....	482.....	48.2.....	800,000
1880.....	50,155,783.....	509.....	50.9.....	980,000
1890.....	65,000,000.....	506.....	50.6.....	1,280,000

It is evident from this exhibit that the ratio to the population of the country, of the number of young men educated by the nation for the military profession, is steadily and rapidly decreasing, and has now reached so insignificant a value as to be somewhat startling. If it be maintained that the only purpose of the institution is to furnish officers to the Army in its peace establishment, the answer is given by the table on the next page.

The study of this table affords some interesting information; as for example, the register of 1861 shows that the number of graduates among the officers of the Army had reached a maximum in 1860 and this number was not again reached until 1876, when it was six greater than in 1860. The greatest loss in any one year was in 1861 and was evidently due to the Great Rebellion. The average increase of the percentage of graduates to the number

of officers in time of peace is about 1.5, so that about the year 1920 the officers of the Army will be almost wholly composed of graduates of the Military Academy, excluding the medical corps, and it will also be seen that while the whole number of graduates supplied by the Academy since 1859 (a period of 31 years) is 1561, the corresponding increase of graduates to the rolls of the Army is but 437, so that the loss by death, resignation, and retirement amounts to the relatively great number of 1124. From 1872, after the Army was reduced to its present normal condition, the annual loss is about 24, as shown by the names on the rolls of the Army; therefore, whatever be the product of the Academy, this number less 24 appears to be the average gain to the Army. The average number of graduates per year for the period embraced in the table above is 48, so that only about one-half of this number represents the annual army increment.

YEAR. Army Register.	Total number of officers except sur- geons and chaplains.	No. of graduates in the army.	Per cent. of gradu- ates to whole number.	Number of gradu- ates each year.
1858.....				27
January 1, 1859.....	985.....	720.....	73.2.....	32
" 1860.....	984.....	730.....	74.2.....	41
" 1861.....	1002.....	757.....	75.7.....	79
" 1862.....	1878.....	634.....	33.7.....	28
April 1, 1863.....	2123.....	609.....	28.7.....	25
January 1, 1864.....	2074.....	573.....	27.6.....	27
" 1865.....	1942.....	546.....	22.9.....	68
August 1, 1866.....	1944.....	611.....	31.4.....	41
" 1867.....	2792.....	663.....	23.7.....	61
January 1, 1868.....	2740.....	643.....	23.5.....	54
" 1869.....	2744.....	676.....	24.6.....	39
" 1870.....	2547.....	677.....	26.6.....	58
" 1871.....	2012.....	634.....	31.5.....	41
" 1872.....	2011.....	653.....	32.5.....	57
" 1873.....	2001.....	678.....	33.9.....	41
" 1874.....	2000.....	699.....	34.9.....	41
" 1875.....	1965.....	715.....	36.4.....	43
" 1876.....	1929.....	738.....	38.3.....	48
" 1877.....	1929.....	763.....	39.5.....	76
" 1878.....	1935.....	820.....	42.4.....	43
" 1879.....	1931.....	833.....	43.2.....	67
" 1880.....	1933.....	866.....	44.8.....	52
" 1881.....	1933.....	894.....	46.2.....	53
" 1882.....	1955.....	918.....	46.9.....	37
" 1883.....	1951.....	918.....	47.0.....	52
" 1884.....	1952.....	938.....	48.5.....	37
" 1885.....	1952.....	949.....	48.6.....	39
" 1886.....	1953.....	970.....	50.7.....	77
" 1887.....	1951.....	1018.....	52.2.....	64
" 1888.....	1947.....	1058.....	54.3.....	44
" 1889.....	1942.....	1070.....	55.1.....	49
" 1890.....	1945.....	1103.....	56.6.....	54

Neglecting for the present the influence upon the country of those young men who obtain but a partial education at the

Academy, it becomes a very pertinent question whether the nation derives from its military plant at West Point even a modicum of what it should obtain. I am sure that a study of the foregoing table will convince any one that the product of the Academy is now relatively insignificant to the population of the country.

The present regulations governing the appointments of cadets suffices for the supply of very nearly all the vacancies that annually occur in the Regular Army. But the Regular Army is minute in comparison with the militia of the United States and the latter is the ultimate reliance in case of a war of any magnitude. Alexander Hamilton, in one of the numbers of the *Federalist* (page 371), says: "The highest number to which, according to the best computation, a standing army can be carried in any country does not exceed one-hundredth part of the whole number of souls; or one twenty-fifth part of the number able to bear arms."

This would give as a limit for the greatest standing army for the U. S. at present 650,000 men, requiring at least 20,000 officers. But as no one advocates the necessity of a standing army even one-tenth as great as this, and as it is not probable that the Regular Army will for many years exceed 30,000 men, we may omit any consideration of the question of officering an army of greater strength than the latter number; and this, as was said before, the Academy does fairly well now.

Granting this, it may well be asked whether the Government can legally provide for the instruction of a greater number of young men in the military profession than is requisite to supply the annual necessities of the Regular Army. On this point Timothy Farrar, in his "Manual of the Constitution," says (in speaking of the means for providing for the common defense): "They include not merely the making defense when called for, all the powers, demands, and appliances of actual war, when it comes, but the providence necessary to anticipate and secure, in times of profound peace, the appropriate means for making defense effectual when wanted;—not only fostering and encouraging the profession of soldiers and sailors, but establishing and maintaining permanent institutions of learning and science for disciplining *in adequate numbers*, the youth of the land, for future officers and men-of-war by sea and land" (page 121). As regards the legality I think that there can be no question and it may be accepted that the Government can make provision for as many cadets at

the Military Academy as may be deemed necessary for future possible emergencies, even should there be no apparent immediate necessity for their services. Under this supposition I proceed to enumerate the advantages to the country that an increased number of cadets would bring. I will take 1000 as the proposed number so that the conclusions appertaining to this number can readily be made applicable to any other number whatever.

Since the last census the number of cadets allowed is 346, one from each congressional and territorial district and ten at large selected by the President. Of this allowed number, the average present at the Academy during the first half of the academic year is about 290 and during the last half 275, arising from failure to pass the entrance and the January examinations. Estimating the same proportion on our unit basis of 1000 we have 843 and 800 respectively; and for the strength of the graduating class on the same basis 145. Should all appointments to the Army be restricted to graduates of the Academy the average number required would be about 60, thus leaving 85 young men yearly to return to the occupations of civil life without any prospect of military employment except in case of war. As it is with respect to these young men that the main issue lies I shall first examine their possible future to ascertain whether it has been worth while for the Government to expend the necessary money and labor for their education and training.

I assume that it is a recognized principle in a republican form of government that it is both necessary and obligatory to devote a portion of its revenue for the elementary education of its youth so far as may be necessary to enable them to comprehend the essential principles upon which it is founded; and this at least requires in this country a common school education in the elementary branches; so that the youth may be able to read understandingly the Declaration of Independence and the Constitution of the United States.

This principle is essentially recognized in each State and is very liberally interpreted throughout the Union. Let now the General Government enact that for its future necessities it shall select in any suitable manner from the several States a sufficient number of young men whom it will further educate in a special degree, and while not requiring their services for the present, will agree to bestow on them present advantages for possible service in the future. This seems to me to be perfectly legitimate and

in accord with the interpretation given by Farrar, heretofore cited.

What now is the scope and character of the education given by the Academy and in what degree does it depart from that required for purely civil pursuits? The answer to this question will show whether the Government asks too much or whether it is liberal in its beneficence. The age at which pupils can enter the Academy is seventeen years; a competent student can therefore graduate at the age of twenty-one; he is then well qualified, both by age and acquirements, to undertake a professional education or a business career. He is much better prepared for either than he would be under any other system of education given by any institution in this country with which I am acquainted. In saying this, I mean to be understood to refer to the development of those elements of character which go to make up the manly man, in contradistinction to those which characterize the shrewd, smart, rascally Napoleons of finance, who rob others to enrich themselves and who are really devoid of honesty and integrity.

I assert that the tone of the Military Academy is measurably higher in regard to the practice of truth-telling and the standard of integrity, and in the guarding of its pupils from immoral tendencies during the formative period of young manhood, than is the case at any other institution in the country. I do not claim that any system of education can wholly eradicate tendencies to evil, but do claim that here, at least, the ultimating of these tendencies into act is more quickly observed, more promptly checked, and more decidedly rebuked than elsewhere. Of the two great commandments, Love to the Lord and Love to the Neighbor, enunciated by our Saviour as the essential law for salvation, I do believe that the latter is fairly well carried out by the system of responsibility adopted and the government established for the cadets.

Granting this with regard to the moral elements of character, let us examine what is done for the intellectual part of the man. The selected candidate comes here and is admitted provided he is physically sound in the opinion of a board of medical experts, and can pass an examination in arithmetic, English grammar, U. S. history, geography, reading and writing, including orthography. The requirements in respect to this examination are not excessive by reason of the liberality exercised by the academic board.

Enumerating the subjects studied after admission we have the following respectable list: English grammar, composition, rhetoric, French, Spanish, algebra, geometry, trigonometry, surveying, descriptive geometry, analytical geometry, determinants, method of least squares, differential and integral calculus, heat, organic and inorganic chemistry, electrics and magnetism, geology, mineralogy, physiology, mechanics of solids and of liquids and gases, wave motion, geometrical and physical optics, general and physical astronomy, freehand, mechanical and topographical drawing, general history, international, constitutional and military law, ordnance and gunnery, civil engineering, field fortification, outposts, grand and minor tactics, strategy, art of war, discipline and drill regulations; in all, forty-five distinct subjects as they would be specified in a published curriculum of a college. In addition to these there is given practical instruction in infantry, artillery and cavalry tactics, musketry and great gun practice, ballistics, equitation, constructing pontoon and other military bridges, laying out and constructing military works, gymnastics and fencing with foil, sabre and musket.

An examination of these various subjects will show that a broad, scientific foundation is laid in the cadet's education, and that parallel with it, his physical development is amply provided for. The subjects pertaining to the military profession are relatively few, but these are to be further prosecuted in the practice schools of the different branches of the service now permanently established in the Army. It can be said without fear of contradiction, that all the subjects above enumerated are thoroughly taught and well learned at the Military Academy, and very much better than, on the average, is the case elsewhere.

The subjects peculiarly professional are studied in the last year of the course, and therefore, the time required for purely military professional study of those young men who are not to enter the service on graduating, provided some such scheme of enlargement be adopted, is by no means excessive considering the great benefits conferred upon them by the Government in the free gift of a liberal education and a comfortable support while here. I wish here to emphasize the statement that the education given them is individually most valuable, and that whatever career they may ultimately adopt, it can never be regretted in any part. I have heard gentlemen state that they would be glad to meet all the expense of the education of their



sons at the Military Academy without any promise of a commission on graduation, should the way be opened for their admission, and I am sure that there would be no difficulty in filling all vacancies that could occur in this way alone.

To mention all the advantages which the country would derive from the influx into the avocations of civil life of even this small number of young men, who are trained in the fundamental principles of the military art, instructed in the rules of military police and discipline, is equivalent to the enumeration of all the benefits that a country derives from law-abiding citizens, intelligent patriots full of that reserve power that gives stability to the nation in times of extremity. Matthew Arnold has well said that it is "the remnant that saves," a truth that has been well exemplified in the history of every nation that has been worth saving since the world began. In the line of this thought we may well notice the following facts, to wit :

1. What has been the conduct of the graduates of the Military Academy who have returned to the avocations of civil life after a long or short service in the Army? Thanks to the valuable researches of General Cullum, we have a detailed record of the career of every graduate, and can therefore speak by the book. This record shows that up to the year 1879, out of 2759 graduates of the Military Academy, 1668 had served with distinction in forty-five different civil occupations, embracing such diverse functions as President of the United States, Cabinet Ministers, Ministers to foreign Courts, Consuls, Senators and Representatives, Governors of States and Territories, Members of State Constitutional Conventions and Legislature, State and Municipal officers, Presidents and Professors of Universities, Colleges and Academies, Presidents, Engineers and Superintendents of railroads and other public works, Judges, Lawyers, Clergymen, Physicians, Merchants, Manufacturers, Architects, Farmers, Bankers, Editors and Authors. It is also to be remarked that these men are not usually seekers after office; they are those whom the office seeks; they are the men who have the implicit confidence of the community wherever they take residence; they are the self-contained, self-reliant, upright men, whose correct lives and disciplined powers are sought by their neighbors and associates for the public good. I am afraid that it would tax your patience too much were I to extract from the Register of General Cullum and repeat here the many names of the former pupils of this in-

stitution whose services have been such as to make their fame national in their civil capacity alone. This is familiar to you all; but I am sure that such a repetition would call forth from many not so well informed the response: "What; is he too a graduate of West Point?"

And notwithstanding their age, occupation, material interest, or personal benefit, at the call of their country in time of war, they have promptly tendered their services as soldiers, just as General Grant did, "in whatever capacity might be thought best."

2. Judging from the past it is to be inferred that whatever be the number of graduates in excess of that required for the supply of the ever small Regular Army that this country will maintain, they will seek their homes, apply the principles of rectitude, and the habits of industry, inculcated here, and devote their powers to the mastery of that business or profession which is best suited to their particular aptitude. They will, by their training in discipline and subordination become conservatives in all that relates to administration and government, steadfast supporters of the State and National Constitutions, and uphold law against the attacks of disorder and anarchy. They will naturally take great interest and unite themselves with the National Guard of their States, and do more to bring into harmony whatever opposing tendencies of the Army and people now exist, than is promised by any other scheme that has been suggested.

3. The most serious danger that confronts our country arises from the decline of an educated military body of men in point of numbers, as compared with the population. What can be said of the relative value of the utmost labors of but fifty new men per year in any profession, in influencing a nation of 65,000,000? This is all very well in times of profound peace, and under the supposition that peace is to last forever. But if this be the case what, it may be asked, is the use of even the fifty? When war comes, and history warns us that it is certain to come, who is to train and discipline the mighty hosts that will be required to meet the exigencies of modern war? Shall we be content to suffer the waste of life and of money, and repeat the disgraceful history of the beginnings of the War of 1812, of the Mexican War, and of the Great Rebellion, where ignorance, stupidity and rascality unblushingly wrought the greatest havoc with the health and lives of our best citizens? To emphasize these statements,

I reproduce here the testimony of General Upton, taken from his work on the Military Policy of the United States, and abbreviated in his Life and Letters. (See page 426, *et seq.*)

"The Revolutionary period is characterized by the most flagrant corruption, the worst of all bad financial systems, and the most imbecile government and control of the army. The history of the war is the recital of stupendous blunders. It was carried on by a Continental Congress destitute of executive power, issuing 'resolves' to practically independent States, whose troops professed no allegiance to Congress, and but little to the States themselves. The troops, being enlisted for short periods, poorly armed, ill-clad, and half starved, were forced to act on the defensive against a force superior in numbers and discipline, and should (by all the laws of probability) have been totally defeated and dispersed. That one of the foremost military powers of Europe failed to keep so rich and fertile a country in subjection, its people being so few and so disunited, and controlled by so indifferent a military policy, will ever be an historical mystery. Twice were dictatorial powers conferred on Washington, who, even in the most gloomy period, and in times of deepest distress, by his steadfast patriotism, unconquerable tenacity, and undoubted military talents, dissipated the clouds of discontent and revived the national hope. As a central figure in the Revolution, in encouraging his frozen veterans to hold fast, to suffer, and to endure; relying on a future recompense when the present offerings were barren, while he was at the same time almost without hope of successful resistance, and the victim of the worst military policy that could be devised by human ignorance and imbecility, Washington is without a peer in history. His Revolutionary experience should be made the classic study of every child in the land, that his example should sink deep in its mind as the one true type of disinterested patriotism, and to whom it owes, under Providence, the blessings of the exuberant freedom that we now enjoy.

"The lessons clearly taught by the Revolutionary War are outlined briefly: 1. Any unwise or feeble military policy is wasteful in men, money and material; no sound reason can be advanced for the adoption of such a policy that cannot with equal force be urged for a stronger one. That the military policy of the Continental Congress resulted in great losses, and was carried on at great expense and sacrifice, is shown by ample statistics obtained from the unquestioned authority of the public records; the total number of troops enlisted, many for very short terms, amounted to nearly 400,000 men, and had entailed an expenditure in pensions alone of over 80 million dollars.

"2. Any nation attempting to combat disciplined troops with raw levies must maintain an army at least double that of the enemy, and even then without any guarantee of success. That voluntary enlistments based on patriotic sentiment, or on the payment of bounties, cannot be relied on to supply troops for a prolonged war, but that the draft, either with or without such enlistments, is the only safe reliance of a government in time of war.

"3. That short enlistments at the commencement of a war compel the Government to resort to bounties or the draft; that they are always destructive of discipline, constantly expose an army to disaster, and inevitably prolong a war with its attendant evils.

"4. That regular troops engaged for the war are the only safe reliance, and in every point of view, the best and most economical.

"5. That discipline gives value to troops; that it is the fruit of long training, and can only be had with a good corps of officers.

"6. That the insufficiency of mere numbers to counterbalance the laxity of discipline should convince us that our policy in peace and war should be to have, in the words of Washington, 'a good rather than a large army.'"

The mistakes committed during the Revolution did not prevent their repetition in the succeeding wars. The exultation and false security which resulted from the miraculous preservation of our liberties under the most trying and adverse circumstances, gave birth to a fallacious principle which has already cost the country great treasure and thousands of the lives of its best citizens. The belief that a "standing army is dangerous to the liberties of the country," readily accepted by the people, is but a counterfeit truth. Its falsity is apparent when a clear distinction is made between an army of citizens who owe military allegiance to the country, created by the sovereign will of the people, and one composed of the hirelings of despotic power. But the fallacious statement has found favor in the mouths of demagogues, and has been the key to unlock Pandora's box in the successive wars that have from time to time occurred.

It is almost impossible to read with patience, or without deep humiliation, the recital of the campaigns of the War of 1812. The attempts to disperse a small force of British regulars which had captured Hull's army at Detroit, defeated and captured Winchester's command at Frenchtown, once besieged Fort Meigs, and twice invaded Ohio, and only met with one small rebuff at the hands of a stripling of twenty-one years of age, in command of 160 regulars at Fort Stephenson, convey a military lesson of the highest importance. Exclusive of the hastily organized and half-filled regiments of regulars, it is shown that 50,000 militia were called out from the States of Ohio, Kentucky, Tennessee, Pennsylvania, and Virginia, to withstand a force of only 800 British regulars, and their Indian allies in the Northwest. Equal prodigality and humiliation characterized the operations in the North, and official data show that during the year 1813, a total force of 66,376 mostly militia, were employed to observe a force

of but 2600 British regulars and sailors. Employing raw troops and acting on the principle of short enlistments in the Creek war in Alabama, necessitated the use of 15,000 militia to withstand a force of not more than 1500 Indians. In 1814 the capture of Washington and the destruction of its public buildings completed the national humiliation.

Even the brilliant victory of New Orleans furnishes its example of lack of discipline, insubordination, and total disregard of obedience, which threatened for a time the success of our arms. As an evidence of our most unfortunate military conduct of the war, although at the same time of the liberality of the republic, it is stated that the pensioners of the War of 1812 received from the public Treasury, during the fiscal year of 1873-74, the sum of over \$2,000,000.

So brilliant were the campaigns conducted by Generals Taylor and Scott, that the statement that the war was fought under the same system of laws and executive orders as that of 1812, seems almost paradoxical. But the explanation shows that, in spite of our vicious military policy, the causes which brought such renown to our arms are to be found in the military weakness of our adversary, and the excellence of our Regular Army. Upton shows that we had ample time to prepare for the war, which was to be one of invasion and conquest; that the Regular Army, which amounted to less than 7500 men in May, 1846, might have been expanded so that at least 8000 could have been given Taylor at Corpus Christi, before the opening of the campaign; that, instead of adopting so wise a measure, contingent authority was conferred on him to call for volunteers from the Governors of Texas and Louisiana, without there being the slightest means provided for their equipment, supply, or payment; and that events forced him to open the campaign against an organized force of 6000 of the enemy, with a strength of but 2222 men. Before the volunteering, commenced in excitement, could be stopped, over 8000 were sent to General Taylor, wholly destitute of equipment, arms, transportation, and indeed of everything needed for aggressive or defensive warfare, so that they were compelled to remain near this depot until the end of their enlistment (three months), and until they were discharged. They returned to their homes without firing a shot, and suffered a loss of 145 by disease, but 25 less than the total of our killed and wounded in the two battles of the 8th and 9th of May, 1846.

So quickly did the country respond to the call of the President of May 13, 1846, that General Taylor found it difficult to employ and subsist the volunteers who flocked to his standard, and he was compelled to leave over 6000 behind, which, however, by subsequent drill and discipline formed an excellent army of the second line. The battle of Monterey was fought by his army of two divisions of regulars and one division of volunteers, 6000 in all. Buena Vista was fought by trained volunteers, whose valor justified his foresight in having them trained and disciplined. In this noted battle the enemy, 20,000 strong, were utterly defeated by 4300 volunteers, supported by but 453 regular infantry and artillery. At the critical moment the splendid courage and skillful handling of the regular batteries, which, in the language of General Taylor, were "always in action at the right time and in the right place," inspired the whole army, and snatched victory from almost certain defeat.

Scott's campaign affords striking lessons and many warnings of the fatal military policy adopted by the Government. After a series of extraordinary successes and remarkable trials, he reached Puebla, within three days' march of the enemy's capital, with an army reduced by expiration of service and sickness to 5820 effective men. Here he was compelled to remain on the defensive for more than two months, while the enemy, profiting by the delay, recruited and reorganized his army to over 30,000 men and 100 pieces of artillery. And it was not until the 7th of August that General Scott, after receiving recruits in dribblets, could muster 10,000 effective men, and secure the succession of marvellous victories which, on the 14th of September, culminated in the capture of the City of Mexico.

Referring to the Rebellion, Upton says: "By the action of the previous administration, 183 companies of the line of the Regular Army had been sent to the extreme frontier; and, of the 15 remaining, but five were available for garrisoning the nine permanent fortifications on the Southern Atlantic and Gulf Coasts. The new administration was thus effectually prevented from using any portion of the regular forces of the United States even for the defense of the capital. Recourse was of necessity had to undisciplined militia; and the humiliating spectacle was presented of the first body of militia called into service from the District of Columbia, exacting conditions from the Government, or of flatly refusing service! Throughout the North, to so low a standard had the



military art descended among the militia—a few regiments in the great cities alone excepted—that, although numbering over 3,000,000 men, they possessed neither instruction nor a respectable organization. They could not be considered in any sense a military force, and yet recourse must be had to them, and to them alone, in the exigencies then pressing.

Controlled by circumstances, the President was forced to assume dictatorial powers, and to usurp the functions of Congress in decreeing an increase of the Regular Army and Navy, and in making a call for volunteers—and, although the new Congress promptly legalized his action, it is well to call attention to the historical fact that the President raised armies, provided a navy, and opened the doors of the Treasury to irresponsible citizens. This immense stride toward despotic power was attended with no serious danger to the liberties of the country, simply because of the personal character and patriotic devotion of the President, and the active spirit of liberty existing among the people whom he served.

Another anomaly in our history is also to be noticed in this crisis. The growth of business at the War Department increased with such rapidity that the Secretary was obliged to turn over to the Secretary of the Treasury, as a pressing necessity, the organization of the forces called into service. Many of the details of this organization were discussed and recommended by an irresponsible board of three army officers, but the final decision was made by the Secretary of the Treasury. Unfortunately the recommendations of this board relating to the organization of the volunteer regiments, to their forming part of the Regular Army of the United States, and to the methods of commissioning their officers, were not favorably considered, and the Government was committed by the action of a Cabinet officer other than the War Secretary to the mistaken and vicious policy of State troops in a war for national existence.

Among other errors, which to the unprofessional mind might appear trivial, but which, once committed, were attended with disastrous results are, the failure on the part of the Government to appreciate the value of the professional skill and training within its control, and to use these attributes to the best advantage; its unwise action in regard to the tendered resignations of regular officers of Southern birth and affiliations, and, by readily accepting such resignations as were offered, contributed to the military



strength of the Rebellion ; the retention of the Regular Army as a separate organization, which, though insignificant in point of numbers, contained over 600 well-instructed captains and subalterns who could have been much more profitably employed in the great army of volunteers, in commands of higher importance ; and finally, in discouraging those regular officers who desired a field of wider usefulness from taking volunteer commissions.

The situation at the close of this first year of the war was such as to give us a most vigorous and abundant military legislation. Congress, in attempting to repair the mistakes previously committed, was prodigal in voting men and money for the vigorous prosecution of the war. It, however, was the victim of the fatal delusion that this generous disposition of our means and resources removed from its shoulders all other responsibility. It regarded the responsibility as being shifted to the shoulders of its generals, forgetting that armies require time for their evolution, drill and discipline for their efficiency, and cannot be created by the mere stroke of the pen. Rejecting the principle of obligatory military service of its citizens in 1861, which had been declared in 1792, and still alarmed at the prospect of a regular army, Congress violated the practice of every civilized nation by calling out a vast number of untrained men without providing the necessary means to form them into disciplined troops, except by the most expensive and wasteful of all measures. It provided no regimental depots, and made no provision for keeping the regiments full, either by voluntary enlistment or by the draft. It made no provision for officers of capacity or education, but intrusted the lives of its citizens and the conduct of affairs to the ignorant and, in many cases, incompetent leaders. It gave, to those who proved themselves deserving, no hope of reward save through the Governors of the States. It permitted company officers to be elected by the men, and field officers by the company officers, to the certain destruction of discipline, and to the worst kind of intriguing. Until volunteering gave place to the draft, the troops were enrolled, subsisted, clothed, supplied, armed, equipped, and transported by State agents, and the Government paid the bills. It was forced to convene boards to examine into the qualifications of officers commissioned by State Governors, and to dismiss peremptorily large numbers of worthless officers from the service. It is scarcely possible to contrive or to imagine a more vicious military policy than that with which we began the war and retained for

a considerable time, and Upton shows that the responsibility rests upon our so-called statesmen, "to whom the experience of history conveys no lesson worth the learning."

If disasters (such as these) can be prevented in the future, or at least greatly diminished at a very small expense by some such policy as that suggested, why not adopt it? Besides the benefit to be derived is not to be wholly measured by the very small number of those who annually return to civil pursuits; for as seed brings forth sometimes an hundred fold, so the widening influences of these men operating from many centres all over the country will be correspondingly greater than that indicated by their number alone.

4. Another very important consideration is that there will be an avenue opened more widely than now exists for the choice of a military profession. At present no one can certainly determine that this shall be his future profession, and have even a reasonable hope that he may be selected for appointment to the Military Academy for the requisite education. The consequence is that the appointments are given hap-hazard, and as a result the great majority of those sent here come without any particular aptitude for the career they have chosen. The ignorance that prevails throughout the country in regard to the whole subject of our profession is as surprising as it is distressing. The history of the late war has informed the people generally that there is such a place as West Point, and that the officers educated there are very able soldiers, because the prominent military heroes of that war were West Pointers; but what boys learn there, or what the manner of their life is while there, or after they leave, are matters upon which the great mass of the people are densely ignorant. The number of young men therefore that entertain the ambition to become soldiers, and in addition have any information as to what they have to accomplish in order to succeed, is indeed very limited. They are confined to those who have had friends or relatives at the institution from whom they have obtained their information and possibly their ambition. Ordinarily some member of Congress finding himself charged with the duty of selecting a candidate for admission to West Point either bestows the appointment upon the son of some influential constituent or throws it open to competitive examination. If the limited number of these appointments and their relatively great value to the country be considered, it will be evident that neither of these

methods, as they are at present conducted, is worthy or commendable. Others, in selecting, do endeavor to nominate a candidate who unites all the requisite qualities, moral, physical, and intellectual that best fit him for the performance of the exacting and responsible duties that will be required of him in all the exigencies of future service.

Having now mentioned the important considerations in favor of an increase of the number of cadets to be educated here, let us inquire whether there are any serious objections to this proposition. These are

1. An increased expense, in annual appropriation for support.
2. Increased accommodation, requiring enlargement of barracks.
3. Greater number of detailed officers as instructors.
4. Proper administration of discipline, when the greater number of students are to be exempt from military employment upon graduation.

The first three objections can be dismissed with a word. No one expects to obtain anything of value for nothing, and every one is willing to pay liberally for a thing of essential value. The United States is a wealthy nation, quite able and willing to meet all the necessary expense for any increase of the Military Academy whenever it is demonstrated that such an increase is requisite. The recent appropriations for the establishment of a great gun factory and for steel forgings for the guns required to place our coasts in a state of proper defense, are acts of the greatest folly unless it is intended to provide these forts with a personnel of trained officers and men for their efficient service. To provide for this alone will require in the near future a considerable increase of scientifically trained officers much beyond that now furnished by the present organization of the Military Academy.

The last objection, though wholly conjectural, demands the most earnest consideration, and I shall attempt to state all the points that have been urged in this respect.

1. Some years ago when the personnel of the Navy was so reduced as to be unable to absorb all the graduates of the Naval Academy in its list of officers, it was commonly believed that the discipline at that academy had markedly deteriorated as well in conduct as in studies; and it is held that a like result would obtain here should a similar condition prevail. I recognize the

full force of the great incentives held out by the Government in the enforcement of discipline, whereby a commission in the Army of the United States is the prize of successful scholarship and correct conduct. I also believe that there would be frequent instances of lessened endeavor on the part of some when it became evident that they had fallen below the line of possible selection. But that the consequent evils are incapable of being remedied and ultimately removed I can never believe. I have too much faith in the soundness of the principles upon which this academy is founded and which have stood rather severe tests for so many years. All that is required in my opinion is a firm administration of the present regulations by competent officers whose conduct and bearing are always such as to inspire the admiration and to insure the respect of the whole body of cadets. Now if it be established and well understood on first joining the Academy that the Government does not obligate itself to grant to any one a commission in the Army, but reserves the right to bestow such commissions only on the few selected and recommended by the academic board, it seems to me that any just cause of complaint or reproach is removed. And when there are no just causes of complaint there can be no grievances; with no grievances discipline can be thoroughly enforced. It is very possible that at the end of the second year's course when class rank has been relatively established, there may be many resignations offered and a considerable diminution of the strength of the class. Even should this be markedly so the country loses nothing, for the training that they have already had is valuable in that direction which is now being advocated. But I do not think that such would be the case to any very great extent; for the prize of a diploma from the Military Academy is in my opinion of such great value that it alone is a sufficient incentive as to cause those who are able to succeed, to continue their efforts to the end.

2. It is also held to be an objection that any selection of officers from the basis of class standing would be open to grave objections. In this opinion I do not concur. It is possibly true that had such been the method when Sheridan graduated he would not have been one of the chosen. Possibly not. And it may be said also that there are many who have been found deficient at the Academy who possessed intrinsic characteristics of so high a military type that they too would have developed into great leaders on the field of battle. No human system of selec-

tion can be perfect, and we must be content with that which gives the best average results. This has, in every educated profession, been shown to be that which assigns the prizes to those who lead in the race and not to the dullards. It may be said with regard to Sheridan that he was by no means an indifferent student. When we compare his early advantages with those of many of his comrades we must be struck with the exhibition of his indomitable persistency and his sure progress. Even had he not been assigned to the army on graduation he would have attained in the late war an exalted position as a leader of men. I well remember a speech that he made at one of the graduates meetings in which he said that "when I was assigned as a second lieutenant to my company I determined to be the very best lieutenant in the company," and so on through all the grades. That is, he made his profession the business of his life, studied it in all its bearings and relations whatever the service might be. He was not content to do his duty perfunctorily, and occupy his time complaining of the slowness of promotion. Men like Sheridan are beyond classification and the system would be perfect indeed, that could enable us to make such discriminations. All that any institution of learning can do is to develop the inherent characteristics of the man, discipline his powers and make him master of himself. There is no system that can radically reconstruct a man. We must therefore conclude from the *état de service* of our graduates that the deliberate judgment of the academic board in the past has been eminently just as might have been inferred from the high character of its constituent members.

3. With regard to the method of selecting the additional candidates required to maintain the strength of the Corps of Cadets up to the designated number, there may be many propositions, but there can be no insuperable difficulty. As the Academy may be regarded as a school established for the public good, it would seem that its legitimate feeder ought to be the public schools of the several States, and they could supply candidates in due proportion to the population of each State. In each State the number allotted could be apportioned among the several school districts, and selections made by the Governors of the States on the recommendation of the school superintendents. By some such method as this the success of the candidates at the Academy would powerfully react on the school districts and direct attention to methods of instruction prevalent therein, resulting in

great benefit to the people. Even should all these appointments carry with them the condition of non-military employment upon graduation, I feel satisfied that there would be no difficulty in keeping them well filled with able young men who would consider the diploma of the Military Academy as a sufficient incentive for the undertaking, and the training, discipline and education, as a *quid pro quo*, worth all the exacting labor of the course.

To sum up then, my conclusions are :

1. The present product of West Point is relatively insignificant to the population of the country and is rapidly becoming more so each year.

2. The necessity of providing a greater number of scientifically trained officers for the public service is apparent to everybody.

3. That the simplest method of disseminating a good knowledge of military science among the people is to thoroughly train a number of young men yearly in excess of that required for the needs of the Regular Army and return them to the avocations of civil life ; and while it is the simplest, it is also the cheapest and the best.

4. That this can be efficiently done by the existing plant at West Point at but little increase in expense and with no change in its organization.

5. That there will then be established a possible military career for young men, and this profession will cease to be almost exclusively restrictive as it is at present ; and a correct knowledge of military principles will be planted at many centres throughout the country which will affect the National Guard of the several States and permeate the militia.

6. In time of war these men will be the military leaders of the armies of the nation, and in time of peace be found among the most intelligent and patriotic of its citizens.

7. Finally these can be no objection offered to such an enlargement of the functions of the Military Academy legally, morally, financially, or on any other grounds, that cannot be shown to be untenable.

## THE "OATH OF ENLISTMENT" IN GERMANY.

By GENERAL S. W. CRAWFORD, U. S. A.

I WAS a witness to-day of so novel and interesting a sight that I have thought it worthy of description in all of its details while yet fresh in my memory.

The recruits who are to fill vacancies and keep up the strength of the regiments of this great German army are sent to them in the month of November in each year. Those assigned to this regiment,—the 5th Westphalia Infantry ;—had promptly reported days ago. Their quarters had been assigned to them, their messing arrangements determined upon, and those essential requisites begun which were to bring them into harmony with their new life and position, and to fit them for an efficient service for three years "under the flag." Even now they could (however awkwardly) "form line" and break into "columns of fours" and march with admirable precision.

It was to-day, and for the first time, that they were permitted to put on the uniform of the government, and the next and most natural step to take, and, as if to impress upon the new soldier what the wearing of that uniform might mean, was to administer to him the oath of allegiance to "Kaiser and to Fatherland." and this, in all of its interesting detail, I witnessed to-day.

Paraded at an early hour in their new and simple uniforms, and their shiny helmets which they wore with equal pride and awkwardness, under the quiet and effective control of their officers there came with measured steps through the town these newly-made soldiers, hundreds of stout, red-cheeked youths, all from nineteen to twenty-one years, apparently; the very incarnation of health and vigorous early manhood, and whose regular features, blue eyes and light hair left no illusion as to their origin.

And on they marched, and well, through the narrow streets, until a venerable church of the Catholic faith hemmed in by crooked streets and crowded by rude buildings in this historic town was reached, and a halt was called.

This oath-taking, the first official act of these young soldiers,



was to be no mere formal ceremony, unmeaning, to be hastily gone through with, and as hastily forgotten. *No; religion* was to give it its countenance, and the *Church* was to assist in enforcing the importance of the act and in according to it its sanction. When all was in readiness, quietly, without the slightest confusion, with no loud echo of coarse command, but as it seemed from signals only, the building was filled in as regular order as if on parade, the men standing to await the ceremony. The officers of the entire regiment in their simple and effective uniforms had taken position in front and remained standing during the ceremony, and among them I had my seat.

Perfect silence pervaded the building, when suddenly a movement took place near the entrance; the tramp of marching men was heard, when the color guard entered the church with the colors of the three battalions, and, flanked by two officers with swords drawn, marched up the aisle with the battle-worn colors, not to halt until they had entered the chancel, faced the assemblage, and grounded the colors before the altar. A door from the sacristy opened and a priest in white vestments was seen upon his knees who, arising and accompanied by an attendant issued from the sacristy and ascended the pulpit, from which, for half an hour, he dwelt upon the nature and importance of the oath that this new soldier was about to take, and the obligation he would assume in taking it, and urging fidelity upon his part, to his country and to his Church;—a discourse wholly in keeping with the occasion, and listened to, as it seemed to me, with profound attention and solemnity, and only demonstrating how forcibly every influence physical, moral, intellectual and spiritual were all brought to bear to make, as perfect as may be, this soldier of the land upon whom its very existence may at any time depend.

When the priest had descended from the pulpit, the color guard moved from the chancel and took position before the altar railing, when the adjutant of the regiment, in full uniform, placed himself before the colors, and at a signal the whole body of men raised the right hand, the fingers forming a cross, and as the voice of the adjutant sounded through the church, the men repeated sentence by sentence the words of the solemn obligation that was to bind them through an average lifetime to an unquestioned devotion to the service of their government and their country, to be sealed, if necessary, with their lives.

But the ceremony was not yet over. The men still stood in

their places when a private soldier, making his way to the front, stood before the adjutant and the colors and repeated a special oath and was as solemnly sworn. And when I wonderingly asked the meaning of so unusual a sight, I was answered that this soldier was an aspirant to a commission, and that a special oath was required under such conditions.

The scene I had just witnessed was the administration of the oath of allegiance to Catholic soldiers in their own church. These youths were of that faith, coming as they had from the farms and country villages and towns of the Rhine provinces of Germany, where the population professing that faith is largely in the majority, and this association of the oath they had just taken with their religion was well calculated to impress them with its importance. The eyes of many of them had rested for the first time upon the tattered colors of their regiment which they had just sworn to defend, if need be, with their lives. To see them now raised above the altar of their church on a level with the cross above it, and surrounded by the sacred emblems of their faith, the altar lights and decorations, and the bright uniforms of their officers, was to make a picture in their minds not soon to be eradicated.

But there was something yet to be done, to satisfy all of the requirements presented at this oath-taking ceremony.

We were in Germany—the land of the Reformation and of Luther,—and where, we were used to believe, the principles and practice of that faith still lived and flourished. We were upon the soil of Protestant Prussia, and it was with some wonderment that I saw the oath to its soldiers administered in a church of the Catholic faith alone. I was soon undeceived.

Upon leaving the church, the colors had been borne under the same command to a plain, unpretentious building in the vicinity, one of the Protestant churches of this Catholic city, and there the same ceremony was observed and the same oath taken. A Lutheran clergyman addressed these young Protestant soldiers, and strangely enough another private soldier repeated the special oath required from those aspiring to a commission, and the ceremony closed with prayer and a benediction.

The color guard with the colors then left the church, and the men, formed in column, escorted them to their place, at the quarters of the colonel of the regiment, where they are guarded by a sentinel of honor.

As the column marched through the streets, one could not but be struck with the silent respect and interest with which it was regarded by the people. There was no cheering heard anywhere, no crowd collected from mere curiosity. All seemed to recognize the purpose of this unusual appearance in their streets, and accustomed as they are to the exhibition of the power rather than the pedantry of their military establishment, they accepted what they saw without question and without comment.

And this closed a procedure full of interest and meaning, far reaching in its effect, and suggestive of reflection and thought. To the eye merely it was a beautiful sight, for youthful vigor and enthusiasm are always beautiful, however misapplied. But as I drove back to my quiet quarters near an old castle once beloved and inhabited by Charlemagne, the effect of what I had seen seemed to reveal itself to me in all its stern reality and purpose. I had seen men in the prime of vigorous manhood, the very life of the nation, who, instead of adding to its collective strength;—in place of being absorbed in industrial pursuits, and identifying themselves with the economic interests of the nation;—were taken away from the homes that had reared and sheltered them, and from the community that had recognized and supported them, to be scattered through the land to unlearn all that they acquired in former years, to form part of an immense military mechanism in which the individual is lost physically and morally, and from which an ordinary lifetime does not free him. And here these youths have come to bind themselves by solemn oath to a power that was to follow them in every walk and avocation of life with an unceasing vigil until life's noon had passed, and their heads were grey. And I wandered in thoughts to that great land beyond the sea where liberty controlled by law had made possible an individual development not dreamed of elsewhere, and in which the scene we had witnessed to-day was wholly impossible. And as I recalled that scene with all that it implied, I could not but feel that unless human nature itself should undergo a revolution, the dawning of that day of prophecy when "nations shall not learn the Art of War any more" was not visible upon this European horizon, and that the hour for the conversion of military implements into the "plough-share and the pruning hook" was yet far, far away.

THE FUNERAL CEREMONIES OF  
WASHINGTON.

PHILADELPHIA, December 21, 1799.

**M**AJOR-GENERAL HAMILTON has received thro' the Secretary of War the following order from the President of the United States.

"The President with deep regret, announces to the Army the death of its beloved Chief, General George Washington. Sharing in the grief which every heart must feel for so heavy and afflicting a public loss, and desirous to express his high sense of the vast debt of gratitude which is due to the Virtues, Talents, and ever memorable Services of the illustrious deceased, he directs that funeral honors be paid him at all the Military stations, and that the Officers of the Army and of the several Corps of Volunteers, wear crape on the left arm mourning, for six months. Major-General Hamilton will give the necessary orders for carrying into effect the foregoing directions."

The impressive terms in which this great national calamity is announced by the President would receive no new force from anything that might be added. The voice of praise would in vain endeavor to exalt a character unrivalled on the list of true glory. Words would in vain attempt to give utterance to that profound and reverential grief which will penetrate every American bosom, and engage the sympathy of an admiring world. If the sad privilege of pre-eminence in sorrow may justly be claimed by the companions in arms of our lamented Chief, their affections will spontaneously perform the dear, tho' painful duty.

'Tis only for me to mingle my tears with those of my fellow Soldiers; cherishing with them the precious recollection that while others are paying a merited tribute to "The Man of the Age" we in particular, allied as we were to him by a closer tie, are called to mourn the irreparable loss of a kind and venerated Patron and Father.

In obedience to the directions of the President the following funeral honors will be paid at the several stations of the Army.

At day-break sixteen guns will be fired in quick succession, and one gun at the distance of each half hour till sunset.

During the procession of the Troops to the place representing that of the enternent, and until the conclusion of the ceremonial, minute guns will be fired. The bier will be received by the Troops formed in line presenting their arms, the Officers, Drums, and Colors, saluting. After this the procession will begin, the Troops, marching by Platoons, in inverted order, and with arms reversed, to the place of enternent—the Drums muffled, and the music playing the dead march.

The bier carried by four sergeants and attended by six pall bearers, where there is Cavalry will be preceded by the Cavalry and will be followed by the Troops on foot. Where there is no Cavalry, a Detachment of Infantry will precede the bier which itself in every case will be preceded by such of the Clergy as may be present. The Officers of the General Staff will immediately succeed the bier.

Where a numerous body of Citizens shall be united with the Military in the procession, the whole of the troops will precede the bier, which will be followed by the Citizens.

When arrived near the place of enternent, the procession will halt. The Troops, in front of the bier, will form in line, and opening their ranks will face inwards to admit the passage of the bier which will then pass through the ranks, the Troops leaning on their arms reversed while the bier passes. When the bier shall have passed, the Troops will resume their position in line, and, reversing their arms, will remain leaning on them until the ceremonial shall be closed.

The music will now perform a solemn air, after which the introductory part of this order will be read. At the end of this a Detachment of Infantry appointed for the purpose will advance and fire three volleys over the bier. The Troops will then return, the Music playing the President's March, the Drums previously unmuffled.

The uniform Companies of Militia are invited to join in arms the Volunteer Corps.

The Commanders at particular stations, conforming generally to the plan, will make such exceptions as will accommodate it to the situation. At places where

Citizens shall take

that the Military

ceremonies

the particular commanders

at those places are authorized to vary the plan so as to adapt it to circumstances.

Brigadier-General McPherson is charged to superintend the ceremonial in the City of Philadelphia. Major Tousard will attend to Fort Mifflin, and will co-operate with him.

The day of performing the ceremonial at each station is left to the particular Commanders.

Major-General Pinckney will make such further arrangements within his district, as he shall deem expedient.

(Signed) A. HAMILTON,  
*Major-General.*

## Reprints and Translations.\*

### A SUMMER NIGHT'S DREAM.

*Translated from the German.*

BY CAPTAIN GAWNE, FIRST ROYAL LANCASHIRE REGIMENT.

*(Reprinted from the United Service Magazine, London.)*

#### CONCLUSION.

IN the meantime the battalion reserves, with drums beating,† approached the foot of the height. A company marched in rear of each flank, and the third company in rear of the centre of the firing line.

The remainder of the supports, consisting of a Zug on each flank of the firing line, could now be pushed up. These Züge stood in single rank, under cover, so that they had merely to march straight forward to prolong the flanks of the firing line.

The reinforcement took place as follows: It was laid down that, in the attack, every reinforcement to the fighting line should give the impulse for a fresh rush. When the advancing Zug, with drums beating, arrived within 130 yards of the firing line, all its leaders blew a shrill note on their whistles to warn the firing line. The Züge nearest to it in the firing line repeated this whistle, and then commands were issued for hotter volley firing. When about thirty-five yards behind the firing line, the leader of the reinforcements gave another whistle and the command, "Double." This whistle was also repeated in the firing line, and the flank Zug leader gave the command, "Slope arms—muzzles well up" (the other Zug leaders increasing their fire). After the reinforcing Zug had rushed past the flank of the

\* Please address communications concerning reprints, translations and reviews to Lt. J. C. BUSH, editor of this department.

† "Drums beating" has a peculiar force in the Prussian army. Visitors to Germany may have observed how whenever soldiers, marching in the ordinary way as a party, pass an officer, they begin to prance with something of the motion of the stage soldier. The rule at all parades and reviews is that when the drums beat the soldiers begin to march with this prancing motion. The movement is no piece of stage swagger, as observers are apt to fancy. It was designed by Frederick with a serious military purpose. No moments are more critical than those during which the lines are steadily marching forward under severe fire, too far from the enemy to begin the excitement of the charge, yet continually losing men as they advance. Prancing has the double effect that it keeps the men's attention absorbed by an action to which they have long been habituated, and that it is by no means so easy for a man to begin to lag behind when he has first to stop prancing. It must therefore be understood that when in the text the words "with drums beating" occur, this implies that the soldiers begin this prancing motion. It will be seen at once how entirely in accordance with Hallen's views would be such a mode of keeping the men in hand under the stress of action.—F. MAURICE.



firing line some fifty yards, the other Züge of the same company followed at once, and the central company somewhat later.

Though the firing line was not required to preserve any fixed line of advance, yet each Zug had to take up its firing position so as to conform to those of the nearest Züge, and to insure the most effective fire. The only circumstances under which a Zug was allowed to pass beyond the general line in advancing was when the enemy could not be seen or hit from the position the Zug would have occupied if it had conformed to the general alignment. When one Zug was thus obliged to advance, the nearest Züge at once conformed to its movement. It was considered to imply a want of courage if a Zug, to obtain good cover, posted itself in such manner that it prevented the next Zug on its right or left either wholly or in part from firing.

"Forward, forward!" cried a Zug leader as his Zug in its advance suddenly came on a dry ditch, which would have given ample cover for several Züge. "Over!" he shouted again, and he cleared the ditch with a long leap. Then halting, he looked round to see that his men had not lain down. Some tumbled in, one was wounded, another seemed to be unconscious. Two men were pulled out, and hurried on behind. The leader thus succeeded in bringing his company some twenty yards nearer to the bare spot it had to occupy.

"What a difference between old days and now!" I exclaimed. "How many a captain of my day would have rejoiced to meet such a ditch! How the men would have thrown themselves in in heaps, and not have left an inch unoccupied! How hard it would have been to get them out again in order to advance. The former friend is the present enemy, formerly greeted with joy, now shunned like the plague. But in this matter I am not on the side of the good old times. The same ditch that this Zug disregarded and left behind it, would formerly have absorbed the fighting strength of a whole company."

In the meantime, the gaps in the centre of the firing line of each battalion had been increased considerably by the losses they had suffered. A company from the battalion reserves was directed to fill up this gap. The company selected was the one marching in rear of the centre of the fighting line, and was, at the time I speak of, under cover at the foot of the height.

The company was standing in line. The company chief gave the usual command:

"First and fourth Züge to the firing line."

On this these Züge moved forward on the command of their leaders, and extended inwards; the first Zug to the left, the fourth to the right, the single rank formation being attained by the rear rank men moving up on the left of their front rank men. All ordered arms. The Zug leader placed himself in front of the right flank man of the second half Zug, and the Zug touched towards this man. The company chief followed at about 100 yards; the support remained under cover.

The gap in the second battalion was not large enough to leave room for two Züge. That did not cause any difficulty, because the Züge had been trained to form two ranks when there was not room in the firing line. The

reinforcement by the new Züge, through the centre of the firing line, took place in precisely the same manner as I described before in the case of those on the flanks.

The men who had to rush through part of the prostrate firing line had orders, if any men did not raise their muzzles high, or if any were taking aim, to seize such men's rifles and take them with them for a few paces.

Moreover, it was not necessary for the firing line to remain lying down until the reinforcement had passed through it, and had taken up its position in front. Since, as a principle, the choice of the moment for a rush was left entirely to the Zug leaders, it often happened that a company advanced from the firing line simultaneously with the reinforcement or before it reached the line. The reinforcement had then to conform to the front of such company.

Our last rush had brought a line, dense and without gaps in the best order to between 300 and 400 yards of the enemy. The fire was well in hand. The battalion reserves were under cover 300 yards behind this line. They consisted of a company in rear of the outer flank of each battalion and a half company in rear of the centre of each battalion. The regimental reserve had advanced and stood in company columns or company lines under cover ready to advance farther when required.

The battle-police of the 1st Regiment had taken their place behind the reserve companies of the 1st and 2d Battalions. They consisted for each battalion of a "closing officer," of the rank of lieutenant, specially selected for his energy, a sergeant and eight lance corporals likewise specially selected. The battle-police had to preserve military order on the battle-field. Their badge of office was a gorget.

The senior of the closing officers was "regimental closing officer," and had control over all battle-police of the regiment.

The closing officers had also charge of the reserve ammunition. I saw them superintending the work of the company ammunition carriers, and indicating the places where the ammunition of the dead and wounded was to be collected. I saw the battle-police, spread over the field, following the firing line, directing the wounded to the dressing station, and assisting the surgeons and stretcher bearers to find severely wounded men. I saw a corporal of this police bring up four men from the rear of the fighting line to the battalion reserve, whence the adjutant sent them to their companies in the fighting line. I overheard some words like "cowards," "a disgrace to the regiment." "Ah! these are 'skulkers,'" I said to myself. Their names were taken down by the closing officer. They had to report themselves to their captains, and could now only by distinguished conduct escape being charged with cowardice on the field of battle, and receiving degrading punishment.

While the 1st Regiment had entered action as I have described, with every prospect of a successful preparation for the charge, a tremendous fire opened suddenly on our left flank.

The 1st Battalion of the 2d Regiment had advanced on the left rear of the 1st Regiment, and had deployed into a formation similar to that of the

first two battalions of the 1st Regiment. Its firing line was originally about 800 yards behind that of the 1st Regiment. Being excited, however, by the commencement of the fight by its comrade regiment, and perhaps also urged forward by the shots which fell in its ranks, it kept on continually pressing more and more to the front; consequently its firing line was almost a prolongation of that of the 1st Regiment, but with an interval of 200 yards between them even before the battalion reserves of the 1st Regiment had come into action. The battalion had now to change front half right in order to take part in the action. But before it could do so it had to employ all its strength in repelling an energetic counter-attack of the enemy, which was directed obliquely against the left flank.

A short and extremely hot action ensued. The firing line of the battalion wheeled half left by *Züge*, and then advanced by companies to its new front. Thick swarms of the enemy's skirmishers had advanced to within 300 yards of the foremost company before its volleys could stop them. A heavy fire from both sides now began. Our battalion, however, did not confine itself to the defensive. Ground must be won, if the danger to the left flank of the comrade regiment was to be altogether removed. After the firing line had been reformed from the *échelon*-like formation which resulted from the wheeling half left, the supports were thrown into it, and a combined advance of the two companies drove the enemy's firing line back. We pushed on about a hundred yards, and were then forced to halt and recommence firing against fresh bodies of the enemy.

In the meantime a company from the battalion reserve had prolonged the firing line to the left, as the enemy's fighting line dangerously overlapped this flank. The enemy, however, gradually developed an overpowering strength, not only in front, where his repeated advances of fresh troops were shattered by our deliberate volleys, but also, in a much more dangerous way on our left flank. On this side the enemy was continually extending his right flank. Swarm upon swarm of fresh troops kept on springing up unexpectedly from the covering folds of the ground, and endeavoring to envelop the flank of the battalion. First the 2d Battalion, and then, as the great superiority of the enemy became apparent, the 3d Battalion also were moved up to the support of the firing line from the brigade reserve, which was behind some copses, about 1100 yards in rear. The approach of these reinforcements had clearly only the effect of inciting the enemy to hasten his efforts to overthrow the still isolated 1st Battalion. The swarms on his right flank began to charge. The few *Züge* of our battalion which had formed a defensive *crochet* on this side were already in confusion, and the control over their fire was lost. Something must be done at once, and the battalion commander did not hesitate to throw in his last reserve. The 4th company, under the battalion leader, advanced cheering, with fixed bayonets, color flying, and drums beating, against the right flank of the enemy, forcing back his firing line right and left. But the enemy was too strong. The magazine fire of fresh masses, who rose behind the panic-stricken skirmishers, shattered our ranks. Thrice sank the color, thrice it rose again and went forward. The fourth time it fell with-

out rising again, and over it fell a number of officers and men. All was in confusion, and when from amid the enemy's smoke a dark mass emerged shouting, our few remaining men took to flight.

The fate of the battalion must be sealed in a minute. The 2d Battalion had, by making all possible haste, arrived within 200 yards of the scene of disaster, but as the greater part of the 1st Battalion was between them and the enemy it could give no help by firing. The 3d Battalion had succeeded in directing its march more to the left, and had opened fire on the enveloping right flank of the enemy. The range was so great, however, that the only effect of its fire was to prevent the further extension of the enemy's flank to the right.

"Unfortunate regiment!" I exclaimed; "one battalion is shattered, and the second will be carried away by the flight of the first."

There was every prospect of this. The firing line of the 1st Battalion continued to advance, instead of throwing itself down so as to allow the fugitives to pass through it, and then open fire. Clearly the chief object was to reach the point where the color of the unfortunate battalion lay under a heap of dead and of wounded who were crawling away; or, at least, to prevent the enemy's reaching this point. Under such circumstances, to halt was impossible, and the danger of being run away with or being thrown into confusion by the fugitives was not so great as I had imagined, I had not reckoned on the power of the close order.

"Keep close together. Let no one through the ranks," shouted the Zug leaders of the advancing firing line. All closed up shoulder to shoulder. The men in some Züge linked arms. On they went at the double, the intervals between Züge having increased considerably. It is true that the crowd of fugitives in crushing through the intervals bent back the wings of some of the Züge, and even tore away a few men with them, but the great majority of these little bodies held close together and passed successfully through the flood in close order.

"The color—the color!" cried the wretched fugitives with wide opened eyes to their advancing comrades. Many of them wanted to join on to the new advance, but were roughly motioned back. "Rally in rear. There is no room for you here." Even at such moments no mixing or crowds were to be tolerated.

When the front was fairly clear, the firing line found itself about 100 yards from the spot where the color was supposed to be. The enemy was not much farther than our men from the same place. He, cheering, for there was a color to be won, was advancing in extended order with a few bodies of troops in close order.

At such a murderously close distance it was all important to be the first to open fire. "Halt, and fire!" shouted our battalion commander, who was riding close behind the firing line. The command "Down!" followed, and then five almost simultaneous volleys crashed out against the enemy. Their effect was instantaneous. In a twinkling, the enemy's attacking force disappeared and dissolved in a thick cloud of smoke. The successive bursts of this fire mowed clear vistas in the enemy's ranks.

In some places we saw his skirmishers rushing back to seek cover in the

dips of the ground. The antagonist was stubborn, and kept on deploying fresh forces to fill up the gaps.

Oursupport continued their advance, part of them reinforcing the centre, part prolonging the left of the firing line. They did not pass through the firing line as was done during the advance of the 1st Regiment, as they had been brought forward for defense, not attack. In the centre of the line they formed a rear rank, the intervals not being sufficiently large to admit them.

The two companies from the battalion reserve were almost entirely employed in prolonging the firing line to the left. Protected by the terrific volleys of some 800 rifles, the 3d Battalion, advancing by rushes, crushed back the right wing of the enemy, and aligned itself with the 2d Battalion. In consequence of the extension of the enemy's line, this battalion also had been obliged to prolong its own firing line to an extent that only left a few Züge in support.

In this manner, by using up all our strength, we succeeded in staying for a time this dangerous counter attack. But the color of the unlucky 1st Battalion, a tempting trophy, still lay in front of the enemy's line.

What a difference there was between the antagonists! On the enemy's side frequent movements, a good deal of uneasiness, rushing forward, ebbing back, shoving aside; on our side the immovable firmness of close ordered lines, lying as if pinned to the ground. There, confusion and crowding, different detachments rushing together or flying apart and preventing each other from firing. Here order and command. There a monotonous, unceasing fire; here an impressive and aggressive fire, frequently interrupted, sometimes silent along the whole line, only to break out again with greater violence. The shock which such an outbreak of fire, after a short silence, caused to the enemy's firing line was most marked.

Still more apparent was the effect when such an outbreak was caused by movements of the enemy, or by the appearance of dark masses in rear of the smoke of his firing line. This fire was volcanic in its fierceness. Frederick's opponents described the effect of his infantry fire to be as if hell had opened its jaws.

I looked about for the fragments of the 1st Battalion. Its closing officer had deposited the reserve ammunition, under cover, at a spot about 450 yards behind the firing line, and here, by his orders the battle-police directed the fugitives. About 200 men had now rallied at this point, and had refilled their ammunition pouches. The few officers among them were nearly all more or less wounded. There was but one senior officer, a captain. Round about this little troop were resting many wounded and exhausted men, whose most necessary wants were being attended to by the stretcher bearers and ambulance men. The groans of the wounded suited well with the downcast looks of the untouched men.

The colonel now galloped up with his adjutant. The men eyed him with doubt and fear. You could read in every eye the bitter thought, "he will ask us, 'Where is the color?'"

"You fought well, men," said the colonel, dismounting. "The enemy was too strong for you, but the battalion did its duty. Your color is not

lost yet. It lies a hundred paces in front of the 2d Battalion. With it lies your brave commander and most of your officers."

The old captain cried like a child.

"There is still time," said the colonel. "Which of you will go with me and regain the color?"

The officers stepped forward.

"Not a man of the 4th company will stop behind," said the captain, looking into his men's eyes.

"We'll go too!" shouted others.

Many men stepped forward quietly and sloped arms.

"We'll all go!" shouted a gigantic soldier, who had lost his helmet, his face covered with blood, and his forehead bound up with a white cloth. "The man who won't go, doesn't know what honor is."

All had stepped forward. An officer with a shattered right arm, held his sword in the left hand. Even some of the slightly wounded and exhausted men wanted to fall in, but were not allowed. The closing officer begged that he and his men might go.

"It concerns your color," cried the colonel, "and in such a matter I will keep no one back. Take off your gorgets, and arm yourselves."

Each company formed a Zug. They fell in, in single rank, with fixed bayonets. Two drummers beat the charge.

"Close up," admonished the colonel, "and not a halt till we reach the color."

The regimental adjutant hurried on before to warn the 2d Battalion of the unexpected reinforcement. As soon as the first whistle of the forlorn hope was heard by the front line it burst into a hellish magazine quick fire, before which the reinforcements of the enemy's firing line crumbled away. With the second whistle the colonel shouted "Double!" cheered, and rushed forward towards the spot where the color must be lying. The firing line threw up their muzzles in the air. On rushed the 1st Battalion behind the colonel, passing over the firing line of the 2d Battalion. No sooner did these last recognize the regimental chief than up sprang its shattered ranks, and went in pursuit of the 1st Battalion. Cheering wildly, and accompanied by the volleys of the 3d Battalion, the entire left wing swept forward at the charge. The enemy fled.

My heart beats fast. They reach the spot where the bodies lie thickest. They bestride it. They search it. Loud shouts of triumph announce success. The old symbol of victory is raised again from the dust of its passing defeat. The soldier with the white bandaged head carries the color to the colonel. This officer grasps it, kisses it, and waves it triumphantly over his head. The numerous ribbons, the mementoes of a famous past, flutter in the breeze. For a moment the thoughts of all in the 1st Battalion are centred on the color. They even forget the enemy. Helmets are waved. They point at the color and yell. They break into tears. Then all grasp their rifles, and from the same spot which we had been forced to leave with such severe loss, repay to the flying foe, with heavy interest, the debt of blood.

"Brave regiment and brave colonel," I exclaimed. "And as for you,



battalion, now joyously submitting to immolation, there are not many left of you; but in the times hereafter there will be thousands upon thousands whose blood will be kindled by the story of the seven hundred of your sons who are now bleeding and dying on the field; thousands upon thousands, whose enthusiasm will be roused when they hear of your deeds and the glorious history of your color."

Was that not a white-livered time when the colors remained behind on troops going into action? When they were hidden in some God-forsaken corner of the battle-field, under the escort of a sergeant and some privates, till the battle was over; or if reports do not lie, were, on the eve of a fight, even ordered to be kept with the baggage? What will future generations say of an age, in which on parade ground the most accurate close order and the greatest exactness of movement was insured by the use of an unrivaled discipline, which yet on the battle-field chose dispersion and gave up control? What will they say of an age in which the colors marched proudly in front on parade, but during an action skulked away.

Was not Bernadotte, whose boast it was never to have lost a gun, notoriously a general who never committed himself seriously? When any beaten army finds comfort in having lost neither colors nor guns, you may generally offer it the cold consolation that had the guns run the risk of capture and had the colors been in front of the regiment, it would probably not have been beaten. To a brave corps the color means "death or victory." No fear of disgrace being attached to such a color, if, after a desperate battle, it does fall into the enemy's hands. If, however, some daring squadron of the enemy should capture colors hidden away behind the battle-field, or even with the baggage, then the most heroic deeds in battle cannot wipe away such a slur.

Now let us get back to my 1st Regiment. Already I had heard sounding from their side the inspiring call, "Fixed bayonets!" Already I saw the 3d Battalion in two deep lines advance by companies to the charge to the strains of the Prussian March.\* The firing line, which till now had been quietly searching the enemy's position with volleys, grew excited. Impulsively, parts of it drew closer to the enemy. When the entire line had made a rush forward, the supports of the centre companies of both battalions went up into it, rushed forward with their Züge already in the firing line, and opened a combined double-rank fire. When the other companies had aligned themselves with these, they were about 200 or 250 yards from the enemy.

The latter also had thrown reinforcements into his firing line. Although our concentrated volleys were directed each time against those points where from behind the smoke dark masses of the enemy could be seen advancing, still these brave men succeeded in gradually forming a second rank behind the shelter trench. This rank knelt and fired over the front rank. The sheltered trenches themselves were partly useless, because of the number of dead and wounded in them.

---

\* "Ich bin ein Preusze  
Kennt ihr meine Farben?"



Our artillery, which had advanced by batteries over the brook, was pelting the village and the ground behind it with shrapnel and shell.

The fire was causing enormous losses on both sides, and the decisive moment could not long be delayed. The companies of the 3d Battalion had reached the protecting foot of the height, and their front line was visible on the crest. It was now the time for the battalions in the fighting line to throw in their last reserve.

The two battalions did this in different ways. The first battalion used up its last company by fragments in the further reinforcing of the firing line by sending a Zug to each of its wing companies. This was the first time that Züge of different companies had been mixed together. This was allowed in pressing cases. If under these circumstances a Zug was placed between two Züge, both belonging to the same company, it had to consider itself as part of that company. If it was between two Züge of different companies it acted independently.

The commander of the 2d Battalion considered the decisive moment to have arrived. The left flank being covered by the 2d Regiment, he had already drawn the reserve of the left, *i. e.*, the 8th company, behind the centre of the battalion, and now brought it up in line to the final attack. The color was in front, the drums beat, and the buglers blew continuously the "Advance." The firing line burst into magazine fire.

Fifty yards from the firing line the 8th company brought the rifles down to the charge. The firing line rose and advanced at the storm march.\* They did not, however, cease firing entirely; for the front rank advanced by Züge at the double about twenty paces, and then fired a volley standing. The first battalion seeing the movement immediately took up the attack.

This moment, when all of the attacking forces were in movement, was that selected by the defense for a last and decisive blow. Single Züge came out of the burning village, and entire companies on the flanks, in order to give a massed fire.

"Halt and fire!" I shouted, on sighting the enemy's reserve. "Just a few magazine volleys—then—hurrah! But it would be idiotic to run against this mass of fresh magazine fire."

Nevertheless only single Züge of the firing line fired, and all the others continued pressing on to the attack. Their ranks were torn apart. It was pitiful to see the lines which had remained so long in order brought in a few minutes into the greatest confusion.

The same death struggle which I had seen in the 1st Battalion of the 2d Regiment repeated itself. Four times the color changed hands, and the fourth bearer also sank in the dust. Finally, the battalion commandant seized it, and the brave crowd which was following him made a last desperate effort to prove themselves worthy of this example. It was useless. A great number of the men had already thrown themselves down, and were hindering by their irregular fire the more courageous from advancing. The number of those who sought safety in flight was rapidly increasing.

"It is all up," I shouted; and my heart felt as if it would burst. "It is

\* *Sturmschritt*, "storm march," an increase from the usual quick march cadence of 112 to the minute to 120. It follows as a matter of routine on fixing bayonets.

all up with the 1st Regiment; one imprudent act has ruined a most promising attack. When the 1st and 2d battalions fly back in fragments the 3d Battalion will have no better fortune."

Suddenly I heard a stentorian voice. It was my friend Hallen's, hurrying up from the rear. "Close!" he thundered at the men, who were streaming back. He twisted the next men to him round to the front. "Close," repeated others of the fugitives, turning sharp round on seeing their colonel. Each gripping a comrade by the arm rushed towards the color. The shout "Close" was heard everywhere. The scream of a whistle was heard, and was successively repeated throughout the line. "Close, close!" was shouted everywhere, with the strength left by despair. The word acted like a charm. The men who were shooting were pulled up from the ground; the fallen color rose again; all crowded into the ranks and to the color. At this point the fire ceased entirely; all this was but the work of a minute.

"Magazine fire—independent fire!" commanded the powerful voice. It was answered by a tremendous outburst of fire. I anxiously looked at the rifles; no, they were all perfectly level, not a muzzle pointing upwards.

It was certainly not a minute too soon. The enemy had already stopped his fatal fire and taken to the bayonet. His officers were driving the men out of the shelter trenches; but the 1st Regiment now repaid its enormous losses. The enemy threw themselves upon the ground as one man, and his bullets whistled thickly over our heads.

The whistles sounded shrilly. The fire round the color ceased instantly, and gradually died away on the wings. "That is the power of the old Prussian fire discipline," I cried. In the rear were heard the drums of the approaching 3d Battalion.

The colonel seized the color. Far afield sounded his command. "Charge bayonets! Double!" and with a triumphant cheer the battalion went for the enemy.

The position was taken.

"Close—close—hurrah!" I shouted, the tears rolling down my cheeks.

The sound of my own voice awoke me. I found myself in bed, my heart throbbing, and my eyes wet.

I jumped up. I could rest no longer. It was already broad daylight. I dressed and hurried into the verandah to cool my hot head in the morning breeze. The birds began their morning carol. The air was invigorating. The rising sun was spreading his beams over the eastern sky.

I was under a kind of spell. My mind was filled by my subject, and by the elevating pictures of death-despising obedience, of magnetic leadership, of unbending severity, and the indestructible power of close order. I was in a dream. It seemed as if all this had actually happened.

It was not the first time that my spirit, enthralled at a late hour by subjects that had excited strong emotions or deep thought, had gone on working during the night, and whilst I was passing from dreamy coma to quiet dozing had grasped what it was working on with such power of decision and of drawing conclusions as is not always at my command during the day. In this way I once instantly solved a mathematical problem over

which I had in vain racked my brains till late into the night. But the power which my dream exerted over me to-day in waking hours was something astounding. Was it enthusiasm for the subject, or the charm of my good old friend's intellectual and personal influence?

I sat down in the place where, only a few hours ago, I had listened with astonishment to Hallen's words. What a revolution had been effected in my ideas and temper during the few night hours!

I made the lifelike pictures pass once more before me in every detail. My success in the foregoing pages, in depicting the truth conveyed in them, has I fear been small.

Shall the thoughts which my gifted friend has tested for years with all the force of his piercing intellect, which he has found to be without flaw—thoughts the truth of which has so convinced and mastered me—shall these thoughts be buried and allowed to rot as if they were useless and hurtful? Are Hallen and I men who allow ourselves to be guided by still-born creations of the brain? Is not the subject of these thoughts a weighty one for the army? Is it not worthy of the thought of others? Yes, of all! Is the fact that the views which are now popular are against us a reason for silence? Certainly not. It is the duty of any one who is as thoroughly convinced as I am to speak out, and I will speak, and Hallen must allow me. Oh, if I could but inspire my pen with the enthusiasm which fills me! Could I but convey in words my friend's persuasive charm, which conquers me so quickly; could I but call to the aid of my waking and thinking state the phantasy which was at my control during my dreams, then I should be certain of success.

But what need of artifices? The principle itself shall and must win.

When this resolve stood firm and clear before my eyes, a tranquil feeling came over me. My spirit became clear and calm. With the morning breeze playing about me, I fell into a deep slumber.

"Dear Hallen," I said to my friend, as we met at morning coffee. "Your wish is fulfilled. I have thought most seriously over the matters which you disclosed to me last evening, and—"

"What," said Hallen, astonished, "during the night! Were you not able to sleep?"

"Well, not over well. Hadn't you been exciting my brain?"

"Ah, yes, I forgot; you have the enviable gift of solving problems in your sleep. Have you been doing this last night? And have you arrived at a decision?"

I winked laughingly.

"Don't be angry," said Hallen, as it seemed to me for the first time a little crossly; "but although we all know an uneasy midsummer night's dream may bring forth many fine things, still it is new to me, and scarcely credible, that it can be a trusty guide in weighty tactical questions. It hurts me," he continued, seeing me still smiling, "that you should so lightly brush away matters, which I have carefully thought over for years. Let us talk them over this evening, and I hope I shall be able to show that your disparaging criticism is a little hasty."

"Disparaging criticism!" The astonishment was on my side now.

"Disparaging criticisms are always quick and easy," said Hallen; "for agreement, time and trouble are necessary. A man must either be thoroughly acquainted with the ideas on the subject, or, if they are quite new to him, as mine were yesterday to you, he must not grudge the trouble of mastering those ideas."

"But, Hallen," said I, "I do not in the least mean to disparage your ideas. I am on your side. The few hours of the night have thoroughly convinced me of the truth of what you have said. My dear fellow, what a night I have had! I went to bed full of our conversation. I did not sleep for some time. The more I thought over your ideas, the more I liked them. And when I fell asleep I had a dream. I saw you and your regiment in action. I saw you storm a height. I saw you execute everything you had but just explained to me. There was no longer any necessity for my brain to convince me of the enormous advantages of these tactics. I saw them, with my own eyes, embodied in you and your brave men. This effected more than months of reflection could have done."

"That beats everything," said Hallen, as his face cleared and he grasped my hand.

"Yes," I continued, "in three hours I have gone farther than you have done in three years. I am a stronger adherent of your ideas than you yourself; for when the sun rose, I was firmly resolved that they should be given to the world."

"Tell me first what you saw and thought," said Hallen.

I did so.

"It is wonderful," he said, laughing; "and you are still in an ecstasy, as if you had seen a miracle."

"Just so. It seems to me like an inspiration, which keeps on urging me to publish it."

"My dear friend," said Hallen, "don't be impetuous. You are still full of your dream. After you have thought over it for a few days, you will see that the present time is not suited to the disclosure of such ideas. General opinion is against us, and our tactics are not quite ripe."

"You may take my word for their ripeness," I answered. "You know me to be no friend of unripe fruit. It does not follow that because current opinion is against us now, it will remain so. Your disclosures were like the egg of Columbus to me, and very likely will be so to many others."

"This matter," remarked Hallen, "will not cause every one an uneasy night and result in inspired dreams. The majority of men do not like being torn by astounding revelations out of a world in which they have ensconced themselves comfortably. No, they will turn away from the new idea and remain as they were. Remember also that all those who write about tactics, or are accepted critics, *i. e.*, the leaders of the prevailing views, have to a certain extent staked their position and influence on the present ideas. You yourself would have nothing to say to my disclosures. You have only been brought to a more favorable judgment by your friendship for me, by your uncommon imagination and by the speed with which you assimilate another's thoughts—at least mine. Where such conditions fail, my ideas will be scouted."

"Oh, Hallen, you take too gloomy a view of the matter. Certainly you will not succeed at once, and one word will not be sufficient; but if there are to be words over it, there must be a beginning. Let there be opposition, so much the better. You do not think your scheme perfect yet. Good. In the general exchange of views it will be further perfected."

"Opposition was what I had expected from you," said Hallen; "I wished to test the strength of my argument by your objections. As it has turned out otherwise, we shall have together to stand out against universal opposition. I am not yet ready for that."

"I have no fear that the opposition will be universal," I replied. "It will be difficult for senior officers to agree to our theories. They have been brought up on the real dispersed fight. All that they have thought and done is connected with the dispersed fight. Just as we scarcely notice the change effected by time in a man whom we see every day, so the change which has come over the essential character of the dispersed fight in the course of years, has for the most part been unnoticed by these officers. For us seniors the dispersed fight is everything, as I remarked to myself last evening. But on the other hand, with service increases the desire for discipline and order. This will greatly help to induce some to uproot, by the aid of reason, the deeply-planted effects of custom. I am not afraid of the young generation. It has grown up in the tactics of the conflict of principles, as you designate the modern infantry tactics. The seed of doubt has been sown in each breast with the primary military education, and from this seed the flower of knowledge can be easily unfolded. The majority of the junior officers will prefer to have clearness, and the prospect of a definite standard as to their duties, to a puzzle. The lieutenants will gladly exchange the leadership of a swarm of skirmishers for that of a single-rank Zug in close order."

"Will many take kindly to a lesson," said Hallen, "which differs so widely from the Regulations?"\*

"The Regulations," was my answer, "in any case require revising, whether the decision be for the tactics of organized disorder or for close order. Even if it is decided to choose the middle course, represented by the present infantry tactics, and to cast these in a uniform mould, still the Regulations must be shaped afresh."

"But our proposals would require the most radical changes," replied Hallen. "The entire dispersed fight must be struck out and the education of the man in the single fight—I mean the isolated fight (battle duels)—must be placed in the Musketry Regulations and the Instructions for Infantry Outpost and Reconnaissance Duties."

"Even if the carrying out of our ideas required the greatest possible number of changes in the mere wording of the Text-books, our views yet approach the spirit of the old Regulations more closely than any others do," I answered.

"In any case an alteration of the Regulations is a long way off," continued Hallen, "as, in the first place, you must have a good foundation to

\* It must be remembered that the *Sommernacht's Traum* appeared in 1888-89. The new German Infantry Regulations in September 1889.

build on. Who can say positively that that is possible till after a new war? How thankful we should all be that the highest authority has hitherto opposed all demands for new Regulations. What should we say now if we had had issued in 1874 as permanent Regulations the "rain worm" \* formations? Before new tactics are embodied in Regulations they should have been brought to maturity by practical trial in the field. Otherwise, people will say that one of the obstacles to the carrying out of our plans will be the lack of the enormous number of capable leaders and the substitutes required for them."

"To that I reply," said I, "that the necessary number of leaders will be forthcoming, when once our tactics are recognized as the right ones."

"Besides which, I fail to see why the duties of group and Zug leaders in the dispersed fight should be easier and simpler than those of section and Zug leaders with close-order *Züge*. It seems to me less difficult to keep together a Zug in close order than to lead an extended one. In the dispersed fight, the duties of the leader are less recognized than they ought to be. That is a defect peculiar to this method of fighting. For instance, is sufficient care taken in practice by army custom or regulation that a leader on whose work so much depends is retired as soon as he is unfit for his duty? † Our last war has accustomed us to place almost no value on the influence of the group leader in the fight. In the regimental history of the 2d Guards a sergeant is mentioned with praise for having corrected the sights of his men when under fire. If such a fact was extraordinary, what must have been the conduct of the other group leaders. Would it not be better, under such circumstances, to place all non-commissioned officers in the ranks, when we should at all events reap the benefit of their superior musketry education? "

"Let our fire tactics be what they may, the numerous augmentations which mobilization would cause compel us to use every effort to increase our supply of capable leaders. With this object we must raise the position and increase the authority of the non-commissioned officer. That will justify us in making greater demands on his capacity for leading. We must also select and educate our reserve officers with more care; it is impossible to avoid extending the length of service of our one-year volunteers. ‡ The number of subalterns must be increased without lowering their quality. But we can go into these matters more thoroughly another day."

"What do you consider the best fighting tactics for the *Landwehr*? "

"For very obvious reasons, *Landwehr* are more sensitive than even the field army to the disadvantages and dangers of the dispersed fight, and require even more holding together," I answered.

\* "Rain worms" was the nickname given by the soldiers to a formation introduced in 1873 in order to diminish losses. The name was given because of the appearance presented by large bodies of troops advancing under fire in many small columns. Please excuse Hallen, who is very fond of drastic expressions.

† It is to be observed that since these words were written the coming to the throne of the present Emperor has been followed by *Gazette* after *Gazette*, in which officers of all ranks have been placed in retirement as being "no longer fit for service in the field."—F. M.

‡ A "one-year volunteer" is a man who by passing a high educational standard escapes with but one year's service, paying all his expenses during this time.

"The unanimity of our views is extraordinary," exclaimed Hallen, with a gratified face. "if you recollect how diametrically opposed we were over the same matters but yesterday."

"Very well, have your way," he added, after a pause; "write the thing and give it to me to read. If then our ideas coincide, we will publish it, let the consequences be what they may. The intention is good."

That is how these pages came to be written. They are less concerned with the brilliant course of the last war than with its unpleasant reverse side. They will disgust many of my kind readers. To these I apologize. Many others, however, will think with me that the discussion of such matters is unavoidable if you want to realize frankly the many dangers and calamities that arise from want of leadership in modern war. Though these last will possibly not agree in my views, I nevertheless venture to hope that I have not failed to excite their interest by what I have said, sufficiently to repay them for the trouble of reading these pages. If so, their being interested will amply repay me for my pains.

But I must candidly admit that my aim is higher than this. I wish to co-operate in bringing the tactics of my arm once more into conformity with the salutary spirit of order, and to restore again the shaken faith in thorough leadership. I wish to awaken those in authority to the necessity for striking out a new path which, utilizing our national traits, will again make the German infantry superior to all others.

Perhaps my aim is too high, and we shall continue to think that our good order, our incomparable discipline, and the influence of our unrivalled corps of officers will and can be of no avail in future wars; in such a case, kind readers, look on the contents of this little book as nothing more than—a pleasant dream.

---

## NOTES ON MILITARY SADDLING.

*(Reprinted from Colburn's United Service Magazine.)\**

A SOLDIER is frequently compared to a machine, to indicate the ready and perfect obedience he yields to every requirement of his service. To enable him to render this, it is obvious that all his appurtenances must be in serviceable working order. The cavalry soldier is a more complex machine than the infantryman, and his continued usefulness is dependent on several things besides the excellence of his individual training, not the least of which are durable horse-shoes and properly fitted saddlery. Good men, good horses, excellent arms, and perfect training are rendered comparatively useless, if what may be called the connective part of the machinery is faulty.

It is with saddlery and saddling only, that I intend to deal now; and I hope, by impressing on horse soldiers in general what the more experienced already know, to attract increased attention to this important subject, and

---

\*Colburn's *United Service Magazine* was merged during 1890 in what is now known as *The United Service Magazine*, London.



perhaps to lead, by some means, to lessening the weight now carried by the troop-horse, and so materially to increase his endurance.

The question most frequently asked about army saddling is, why saddles are so heavy and cumbersome; and the answer is, that if the present load were put on a less strongly constructed saddle, it would inevitably cause it to spread or open out in the front arch or elsewhere, and so to injure the horse's back. It is worth noting that saddles, in all countries where they are used, as ours are, to carry packs as well as riders, are heavy. The cayeuse of the Western prairie, which is closely akin to a fourteen-hand country-bred in India, carries a saddle frequently weighing 65 to 70 lbs. Their riders often are dependent for days on what they can attach to their saddles. In their case, moreover, another reason exists for this size and weight, that is, the necessity for leverage, to resist the struggles of the "roped beast." The cow-boy will assure you he is carried farther, and with greater convenience to his horse, in these saddles than he would be in a smaller one. Few can claim that the cayeuse is a weight-carrier, and his faultiness of shape frequently excites wonder that he is able to travel the prodigious distances he does with scanty fare and little attention.

A cow-boy who attempted to do his work in the hunting-saddle of the old country would be regarded as a "crank," though some, particularly in the Western States, affect a skeleton saddle which is put on a blanket. To me these proved the acme of discomfort, and caused sore backs, unless the blanket was most carefully folded. I rode throughout a campaign on a 14 lb. English hunting-saddle, and though thus securing a comfortable seat, my horse was severely galled in more than one place from friction produced by the various necessities hung on to the saddle; and it was only by very careful folding of the blanket that the animal was enabled to work to the end. Cavalry officers know how frequently they find that nearly all the troopers' saddles need refitting a few days after leaving barracks or camp, on a march; this being due to "back waste," or shrinkage of the dorsal muscles, and absorption of fat, a falling away produced by the harder work, accelerated and increased on service by shortness of food. It is at such times that the merits of the saddle-tree maker come to the front, as well as the care evinced by all concerned in fitting the saddlery. Of all the errors into which saddlers fall in adjusting a saddle to the horse's back, that of adapting an ill-fitting tree to the shape of the back by padding it with stuffing is about the most hurtful. The tree itself should be fitted, and only a moderate quantity of padding introduced. It is on this feature that the practical usefulness of all saddling depends.

The saddle-tree, front and rear arch and fans, should be as carefully fitted to the horse's back as the seat of the saddle should be carefully adjusted to the individual rider. If the latter be not comfortable he cannot remain still; if he move about, he will inevitably chafe, as well as unnecessarily tire his horse. This arises from his shifting the balance from the part of the back which nature designed should bear it. On the accuracy of this balance depends the serviceableness of saddle fitting. We can easily understand that shifting the centre of gravity, of from 19 to 23 stone, will seri-

ously influence the horse's action, partly paralyzing the end towards which it oscillates.

The horse's back, as is carefully explained in that excellent little work of Major Dwyer's "Seats and Saddles" is made up of a number of pieces of bone, of which the projections or levers are so disposed as to assist each other in bearing weight. Thus the projections (*spinous processes*) of the dorsal vertebræ slope backward from 1st to 13th, the 14th is perpendicular, and the remainder slope in a forward direction, as well as those of the adjoining lumbar vertebræ, thus clearly indicating the single straight process to be the centre of gravity on which the weight should balance, so leaving the ends, both forehand and quarters free to accomplish progression with facility.

The fitting of a saddle with regard to the adjustment of the weight it has to carry has two important features, one in relation to the shape of the man's seat, and the other to the shape and make of the horse's back, shoulders, and quarters. It has been said that the weight should balance on the 14th vertebra, but it is peculiarly difficult to adjust this with the regulation valise, carbine, hair-net, corn-bag, horse-shoes, cloak, lasso, and other necessities hung around the saddle, and the load is liable to lean towards forehand or quarters.

With regard to the man's seat, the hollow or lowest part of the saddle seat should ride over the 14th vertebra so as to bring the man's weight exactly over it, and the stirrups should be hung opposite this on each side. This can only be effected by fitting the saddle-tree or framework of saddle after it has been assigned to the horse, and is impossible if only a "size fitting" from the saddle factory be attempted.

So much depends, in the avoidance of sore backs, on the rider sitting still and easily, that every care should be taken to allow his limbs room from the coccyx to the knee-cap to lie against saddle side without constraint; if he moves or sits sideways, friction at once takes place. This will easily be understood by all who have ridden in a hussar saddle that was a little too small for them. I once rode in such a one about four miles at a smart trot, preserving the regulation military seat. As a result I was too sore to sit down the following day, although in hard riding exercise and condition at the time.

There is as much difference between a hunting-saddle and a military one as there is between a steeple-chase rider and a dragoon, and the saddler who is expert at constructing one may know little of making the other. In a steeple-chase seat it is of the greatest advantage to shift the weight at various fences and in different sorts of ground, while the perfection of a military seat is to remain steady.

The fitting of the saddle should be commenced by adjusting the tree without the pads, when it should be secured by a surcingle. A man should then be mounted, and the animal be moved about, and the position observed thus, as well as at a standstill. The fans, or thin wooden plates, which bear the weight, should be *in actual contact* with the back throughout and not, as is too frequently the case where the saddle is fitted by sizes or haphazard, only touching at the inferior margin, the vacant space being

filled with stuffing, and so presenting a finished look to the eye. Such an arrangement is sure to produce sore backs in hard work. Another grave error is having the fan in the shape of a rocker, and so rendering it impossible for the horse's load to ride steadily. This curling up of the points of the saddle-fans throws the weight on to the front arch, and so on to the muscular part of the shoulders, proving a fruitful source of injury from the grinding motion that results as condition wastes. This curving of the fans is intended to keep the valise off the back; it is, however, very conducive to a "wobbley" seat on the rider's part, and careful *packing* and hanging or strapping should supersede it.

The front arch or fork of saddle, which connects the fans or weight bearers in front, should ride  $\frac{1}{4}$ -inch clear of the highest part of withers when fitted without the pads; ample space will then be left when they are on. On the strength of this arch depends whether the saddle spreads or opens out; should this occur, the animal is at once rendered useless, at least for a time.

The wooden fan is covered with a pad of stuffing, the thickness of which should not exceed one inch in any place; if it does, it is apt to conceal defective fitting of the saddle-tree till it shifts on the march, when it is too late to remedy the evil. The stuffing should be nearly uniform throughout, and not much thicker in the centre than at the edges. If it be not so stuffed it facilitates the rocking motion the curled up fans are apt to cause.

I believe the secret of successful saddling is to have the fans in contact with the back throughout, and so fitted as to descend evenly with the "back waste," which inevitably occurs during hard work or from want of food.

Fans, when strengthened with strip iron should be so on the top, and not where it is possible for screws or nails to become loose and injure the back.

The pads have in some cases been experimentally replaced by strips of numnah strapped on to each fan. They have been found to have a most satisfactory result where chronic girth-galls occur, particularly in the case of horses whose quarters and middle pieces are better developed than their shoulders. If not considered suitable for all horses, one or two horses per troop should be thus fitted.

India rubber-grooved tubing and leather numnahs, and I almost think leather panels, are better fitted for private stables than the rough and ready wear of picket lines, where it is difficult to keep them pliable in soaking weather.

Next in order we come to the numnah, or saddle-cloth, which is a necessity, especially in spring and autumn, to prevent abrasion, when the skin, from the shedding of its hair, becomes peculiarly liable to rub.

Some years ago I was allowed to visit a squadron of Russian Hussars billeted near Moscow, who had been through the Turkish campaign with the Army of the Caucasus. I was much struck by the entire absence of those tell-tale white blemishes which generally result from sore backs. I was assured very few had occurred, and that their occurrence throughout the

army was exceptional. The men were light, real hussars, and their saddles were a light type of our Universal pattern, had no pads, but the wooden fans rested on a leather numnah which again rested on three thicknesses of what appeared to me to be Yarkund felt.

Soldiers in our Army are divided as to the merit of the numnah, versus the blanket, as a saddle cloth; many practical horsemen advocate the latter, and with all the surroundings of garrison life it is, doubtless, excellent in preventing sore backs; but it is liable, when used as a covering for the horse on picket lines, to become muddy and so a fertile source of injury to the skin. If folded in the dark and hurriedly put on, it is apt to slip from beneath the rider, or become a hindrance from trailing down. Furthermore, as it wears out, as a Yankee says, "A thin horse and a thin blanket are apt to make a sore back;" and blankets, like other things, rapidly wear out on service. If used, small straps should attach it to the saddle. The great merit is the facility it gives for using a sore-backed horse, as the blanket can be folded to shield a sore in almost any position, except those arising from short fans or the fork on the side of the withers; it is, however, of course, an additional weight.

The girths in use in Line cavalry are of leather with a surcingle. These answer in barracks, but harden rapidly without constant softening. Sore backs and girth-galls are unusual at home, but both are apt to occur on service.

The saddlery of Continental nations lacks our polish; the Germans say that they have no time to spare for such work; but in both French and German armies the leather is so well nourished that it will remain pliable under bad weather for a long time.

Girths vary in all parts of the world; the leather girth of military saddling; the thong girth in Australia; the hunting web; and the broad web of the United States Cavalry. None of these are as good as the broad hair "synche" of the cow-boy's saddle, which, when used double, is invaluable in keeping the load steady, and preventing it shifting even when the horse buck-jumps. This double system might be applied to our military girths, securing increased steadiness and allowing the girths to be worn looser than is safe with a single one.

"Synches" need no dubbing; a good brushing and shaking makes them ready for use after the hardest day's work.

Cruppers have been done away with in the army, and the horse that requires them must have atrociously bad shoulders, or his saddle must need refitting. It is a poor device to constitute the tail a peg whereon to hang the saddle. If, however, in exceptional cases they are considered necessary, the horses must be trained to their use, for, like heel-ropes, their first application is resisted by the majority of horses. Breast-plates have wisely been retained, and, as they are found necessary on valuable hunters with perfect shoulders, they are also necessary on troop-horses.

The stirrups ought to be hung directly under the man's weight, *i. e.*, opposite the centre of gravity, or about the middle of the back.

In the foregoing, attention has very cursorily been directed to the mechanical elements of fitting saddles. I now come to what has an equal

bearing on the subject, namely, the details that concern the riders. The horse-soldier frequently, it is to be feared, regards his mount as a machine that he identifies by a number, and that requires much troublesome cleaning. Only in exceptional cases does he understand horses, so he should from the first be encouraged to realize that, like himself, the horse is an animal with limited powers of endurance which can be fostered and prolonged by proper care. I do not contend that he is cruel to his horse; far from it. He is, however, often a curious mixture, one moment petting his steed in every conceivable way, the next administering rough justice in the form of a severe jerk in the mouth with the bit. His officer in nine cases out of ten is really fond of and understands horses, as they have largely entered into his life since childhood.

The cavalry officer of this type has constantly before him the wish to prolong the usefulness of his troop-horses. He knows the importance of their being in *big working* condition previous to a march, so that they do not absolutely melt the second day, and so necessitate a general refitting of saddlery. He knows the necessity of stripping the saddle-trees of their pads from time to time, and accurately fitting the wooden frame to the back, both at a standstill and with a man on the saddle at a walk, when he can see if the front arch bears unduly on the shoulders, etc., or if the rear-most ends of the fans leave the horse's back, which he knows constitute the two most radical defects he has to contend with. He is aware of the danger of a stuffing-fitted saddle, and insists that the fans press uniformly on the back.

A system of fitting saddles by sizes must be very wrong, as each horse requires to have the saddle-tree accurately fitted, the shape of their backs varying as much as men's feet do. Each saddle should be fitted to the rider by the saddler, and to the horse's back by the saddle-tree maker. These are two important artificers, and on their skill will largely depend the efficiency of the horses and the comfort of the riders.

The best way to insure care on the part of the trooper is to allow him to feel that horse and saddle are, in some sense, his own, and that the saddle is not used on other horses. Thus, in a short time he will learn more about practical saddling than verbal instruction can teach him. If he is found to neglect saddle or horse, he should be relegated to spare horses or other fatigues of a less pleasing nature. Above all, he should be taught to saddle deliberately and carefully, keep a close look-out for slackening girths, stray cloak-strap buckles, or any other shifting of his kit, and the numerous things which are required by horse and rider.

Every mounted officer knows how necessary it is to allow a halt for a few minutes about a mile and a half from the starting place on the march, in order that men and horses may arrange trifling details pertaining to their comfort, tightening loosened girths or other paraphernalia. This is best done if they have trotted half a mile since starting.

In the course of marches amounting to many miles in India, Egypt, England, America and Cashmere, I have frequently noticed how easily sore-backed horses can be used, by means of a little ingenuity in the arrangement of the stuffing or the blanket. In harness horses, with breast har-

ness, it is a matter of still greater simplicity, as driving animals can be used in case of necessity almost without harness. All troopers should be taught to prick away stuffing in the panel opposite any rub; and if four stitches can be put through it at the corners, an efficient arch will have been constructed, and if there is an open sore, the numnah should be left off. The most difficult places to arrange are those arising from shortness of the fans, or pressure of the front arch on the sides of the withers, where sitfasts and deep-seated abscesses arise.

Prevention in this, as in other cases, is so much better than remedy, that every horse-soldier should be initiated into all the simple means for the avoidance of sore backs. A most fruitful source is the over-hasty removal of the saddles on arrival in billets or camp, particularly if a cold east wind be blowing. The swollen blood-vessels then contract too rapidly, and the watery parts of the blood exude, causing lumps as big as a man's hand. If we know them to arise from this cause, and no hair has been rubbed off, they can be speedily reduced by girthing up the saddle for two or three hours. If, however, the skin is sore the animal must have all pressure removed till it has healed and become hard.

It cannot be too soon or too clearly impressed on the horse-soldier's mind, that if his horse is unable to carry him he will have to walk, a rule which should be rigidly enforced in all cases of negligence till his horse be well. Every trooper should be taught the use of a pricker or bradawl, to arrange or regulate the stuffing of the panels, as they harden or as sore backs arise. A spring punch is also very useful where leather stretches, and both these things should be carried by each troop saddler, or by the farrier. Every troop should contain a man who has gone through a course at the saddle factory at Woolwich, by which means the regimental saddler will be kept abreast of the very great advances which have been made in army saddling of recent years. Moreover, a saddler and an assistant in a regiment, say, of 400 saddles, would be helpless unless trained assistance could be summoned from the ranks. These artificers are too valuable to have their lives risked more than can be helped on service, as they are so difficult to replace.

One word as to the necessity of nourishing (not cleaning) leather while in store awaiting issue, and in this I must reluctantly confess I consider Continental nations ahead of us. However good the material may be, it rapidly perishes if not properly softened.

Turning to the weight carried by cavalry, it may be taken that the hussar horse weighing under 1000 lbs. carries about 280 lbs. in "service marching order." The lancer, with a horse of about 1080 lbs. weight, rather more; a heavy dragoon, with a horse averaging in weight about 1100 lbs., carries about 300 lbs. In each of these cases, it amounts to little less than one-third of the animal's actual weight. It needs but little explanation to demonstrate that so great a weight should be adjusted to a nicety with regard to the keystone of the bony arch. If over-balancing in either direction, the load will seriously hamper the horse's movements, as well as knocking it up far sooner than necessary. It is equally obvious such a load can only be carried by an average troop-horse for a certain dis-

tance, which will vary with the pace enforced as well as the condition of the animal. Englishmen generally know so little about the weight of a horse, and its bearing on their working capacity that it is not out of place here, perhaps, to recommend them to acquire the knowledge the Americans already possess and use on this subject. The ingenious men who provide the cavalry trooper with all weapons and appliances should always bear in mind the carrying capacity of the weight-bearing machine, and never exceed it.

The new arm, mounted infantry should be most carefully guarded against being over-loaded, as probably they will not ride as well at the commencement of a campaign as they will at its conclusion; and it becomes impracticable to carry as much as half the regulation weight, unless the rider's seat is good and as far as possible motionless; and as every sore-backed useless horse hampers an army almost as much as a disabled man, every care should be taken to prevent casualties of this nature, and mounted men should have all minor details in connection with this matter carefully explained to them.

Many years ago, when a division of Infantry Transport was assembled at Woolwich, on the first day the officer commanding forgot to feed his horses, and sounded "dismiss" without doing so; the men having to be recalled for that purpose. Such a thing would be impossible now, as qualified officers are always selected; but it forcibly illustrates the necessity for having the most trivial details impressed on the minds of those unused to execute them.

In conclusion it may not be out of place to note that on the march horses travel easiest whose pace, in moderation, is most varied. Alternate trotting and walking is easiest for man and horse. Halts of a few minutes every five miles should be made, and the first one ought to be made within two miles of the last camp, as it is the most important of all. I am a great believer in easing the men's legs and horses' backs by making the men walk half a mile about every seventh mile. The amount of variation which can be introduced into an ordinary march by exercising a little forethought is surprising.

I believe in retaining the saddle girthed up on the horse's back at the journey's end, till all signs of sweating have subsided. This would absolutely avoid many of the simpler forms of sore back. One need scarcely allude to so simple a matter as carefully selecting men by weight and size in proportion to the weight and age of the horses.

To recapitulate, then; efficient saddling is almost entirely dependent on the accuracy with which the saddle-trees have been fitted to the horse's back, and next to the amount of care and intelligence the rider has been trained to exercise on this subject.



## LETTERS ON ARTILLERY.

BY PRINCE KRAFT ZU HOHENLOHE INGELFINGEN.

Translated by Major W. L. HASKIN, U. S. A.

XV.

## ARTILLERY PROBLEMS OF THE PRESENT DAY.

A. Reserve artillery. B. Obtaining the range from a position in rear of the point to be occupied. C. Firing by battery. D. Positions in échelon. E. Diagonal fire. F. Cover for pieces and limbers. G. Horse artillery. H. Suppression of corps artillery.

THE conclusion which you have drawn from what I have heretofore said is correct. I have shown that the increased accuracy and range of artillery has led to the suppression of reserve artillery. I also think that the improvements in the arm since the war can be only additional reasons for bringing into action from the outset all available artillery, holding none back. (Compare par. 195 of the regulations with what I have said in regard to this in my preceding letters.)

But you object that, in view of the murderous effect of shrapnel, the artillery duel will be so destructive to the vanquished party that no artillery will remain to him to assist in the close combat of infantry, unless he has kept a reserve of artillery.

To this I reply that the artillery duel, if it should really have an issue so sinister, will probably bring about the destruction of that one of the two parties which has placed in position the smaller number of pieces. Having but a single battery more than the enemy you can extend beyond his artillery line and take it in flank, or obliquely, and that alone can make the balance weigh in your favor from the very beginning of the action at effective shrapnel range. If we may trust in the data given by the War School, the destruction of the adversary will not be long delayed provided that, as soon as we begin to get the upper hand, we profit by it to concentrate our fire in the most effective manner.

Has it not been asserted that this will take but a quarter of an hour?

As for me, I do not believe, as I have already said in another letter, that the artillery duel will resemble the famous combat between two lions which mutually devoured each other; I do not believe it because, in my opinion, the cannonading will ordinarily begin at very great distances, and the conflict, according to the natural law which we have so often seen confirmed, will, by reason of the improvements in fire-arms, be less bloody.

But if really only fifteen minutes be necessary for one of the artillery lines to destroy the other, it will be all the more imperative to bring into action, simultaneously and with the greatest celerity, all the pieces, as soon as the assailant has resolved to attack,—has chosen his point of attack,—and as the defender shall see the attack develop. For if of two artillery lines of equal strength one leaves a third of its pieces in reserve, the two-thirds first in action will be rapidly destroyed by the stronger adversary,

and this adversary will, afterwards, so much the more quickly destroy also the remaining third.

But, you say : By this manner of reasoning the other arms also should no longer form reserves ; they should not even form several lines, but, on the contrary, should endeavor to advance, at once, on the first line, with all the combatants.

The comparison is not just.

Why do the other arms form lines and reserves? 1st. To gather together and rally troops who have lost cohesion, so that their units may reform and become fit for action again ; for infantry and cavalry which have lost cohesion in action are not only weakened and have little solidity in face of forces advancing in close order and still intact ; but further, they are absolutely at their mercy. 2d. In order to take advantage, to his destruction, of any demoralization amongst the enemy. 3d. So as still to have disposable troops if an unforeseen occasion necessitates their employment upon a new point of the battle-field.

The first two motives do not exist for the artillery. The third loses its importance more and more as the sphere of action of the arm extends. When the artillery was obliged to approach within 1000 paces of the enemy if it wished to obtain an effective fire ; when it could easily happen that it found itself no more than 400 paces from an enemy who menaced it with infantry and cavalry ; it was not possible to count with certainty upon being able to employ upon another point that part of the artillery which had gone into action. It was necessary to consider it as "expended." But the greater the range of artillery the less it is "expended," the more it remains, even when in the fight, at the disposition of the general. It can still be withdrawn and employed in another place.

In the action fought by the Guard Corps at Sedan it was necessary to make the evolution called "Extending the wings." Roon's Battery was posted on the right wing of the Third Battalion of light artillery when it received the order to go to the left wing of the division. It limbered up to draw back, passed behind the other batteries at a trot, and took position on their left, and this in the midst of a very lively and effective chassépôt fire (the captain was killed by a chassépôt bullet in the abdomen soon after unlimbering).

In the same battle the whole battalion of horse-artillery was transferred at the same gait from the extreme right wing to the centre, where it became engaged, returning later to the right wing, the Third Battalion going even to the very extreme of this wing.

The Second Battalion of corps artillery had no difficulty in leaving its first position on the right of the First Battalion, in order to take its second position on the left.

But, even if in future, the enemy's fire should be much more violent than it was at Sedan, it will still be possible to use elsewhere a line of artillery which has gone into action, provided it occupies a position somewhat covered. The distance at which it will have opened fire will be greater, and it will only be necessary to cease firing and to run the pieces a little to the rear and the enemy will see them no more and will cease fir-

ing also (This was my experience at Sedan as I have already told you), and it is at this moment it should move elsewhere.

As to the artillery which is fully engaged in the duel at short shrapnel range, no one would think, at such a moment, of employing it elsewhere; for the violence of the struggle will furnish the best proof that it is posted at the point where there is imperious need of its services.

Moreover the greater the range at which it fires the less will be the necessity for moving artillery in order to fire with it elsewhere. Even the pieces with which we entered upon the campaign of 1870 could, when they were posted in the centre of the front of an army corps, be brought to bear upon all points where this corps was engaged, without changing position, but simply by directing their fire toward those points.

From the position at St. Privat occupied by the batteries of the Guard artillery those of the centre fired across the highway upon the enemy's masses, advancing against the left wing of the corps, then, later, to the right upon the enemy's columns, when they directed a violent attack against the Hessian Division.

In the same way, at Sedan, they fired upon the enemy when he attacked the extreme right wing of the corps, and again upon his troops which were attacking the left wing.

The sphere of action of the artillery having increased, it is able, still without change of position, to lend its assistance at still greater distances.

It follows that an army corps should always endeavor to open fire with the whole of its artillery. If it hold in reserve artillery for which there is still place in the line it will act as did the strategists of former times who posted the reserves wholly without the limits of the theatre of war (as for instance, the corps posted at Halle in 1806) until Napoleon taught them that one could never be too strong in battle.

With an entire army it will, in certain respects, be different. The field piece has not yet a range such that from a single position it is possible for it to cover the whole front of an army. It would, therefore, seem proper, in this case, to retain a reserve of artillery for use when it becomes necessary to strengthen either wing of the army.

But an army composed of several army corps will hold in reserve a certain number of corps, and the batteries of these corps will constitute for it the artillery reserve of which it may possibly stand in need. It is thus that in the battle of the 18th of August, 1870, the III. Corps, which throughout the day was not in action, sent forward its corps artillery into the position at Vionville.

Lastly; to your final argument in favor of the formation of a reserve, that the artillery duel being very violent we run the risk after a battle of having no more artillery for the next day; I reply that the object of greatest importance is to vanquish in the first battle. If you are vanquished in this, those of your pieces which have lost their men and horses will fall into the hands of the enemy. If, on the contrary, you are victorious, you will have to procure immediately a new artillery to replace that which has been ruined by the enemy's fire. Your pieces will not have suffered at all by shrapnel. The men and horses only will have fallen. We attach to our

pieces, therefore, the horses of the empty caissons, which can get along very well with two horses, and for cannoneers and drivers we take the men who were with the caissons. It is thus that after the battle of St. Privat the ammunition columns of the Guard Corps furnished 200 horses to the batteries. Dresky must have refitted his horse batteries in the same way after the battle of Vionville, for they had lost three-fourths of their horses, and nevertheless we see them take part in the action of the 18th of August.

B. The question as to whether the range should be obtained from a point in rear of the position to be occupied has interested me greatly. Brilliant results have been hoped for from this method of operation.

The fact that success in the artillery duel will almost with certainty fall to the lot of that side which first obtains the correct range has given birth to the following idea:

Begin the firing at a very great distance simply to obtain the range. Then fire upon the position that is to be occupied, later, for the decisive duel. By the difference between these two distances it is easy to find the distance of the new position from the enemy. Then, perhaps with pieces loaded and elevations set, go at the most rapid gait into the new position and begin the artillery duel at a known range against an enemy who still has to find it. For example: I fire upon the enemy at 5000 yards. I select a height upon which I intend to go next into position and find that it is 3000 yards distant, and hence I know that it is 2000 yards from the enemy.

I will acknowledge that this idea is so seducing that at first I was in favor of it. But the more I studied its practical application the more I became convinced that it will seldom be possible to carry it into execution. At first sight it might be thought that the closer position which it is intended to take up might be in possession of the enemy and therefore could not be occupied; or, that it might be occupied by our own troops and could not be fired upon for that reason. This method can therefore only be used under a series of favorable circumstances, as in the case when, before our troops occupy the new position, it could have been cannonaded because it was in the possession of the enemy. Otherwise time must be consumed in sending an officer 3000 yards to the front to warn our troops to draw off to one side to avoid our projectiles, and, when they have done this, it must not happen that the enemy's infantry profit by the occasion to take possession at once of the evacuated terrain. Besides, the new position must be directly in the line of fire of the first one, for otherwise it will be impossible to calculate the difference. Furthermore: the front of the enemy's artillery must be in one single and the same line, and the front of the new position that we are going to occupy must be, throughout all its length, exactly parallel to the enemy's front, for unless this be so the distance will differ for the two wings.

But even if all these conditions be fulfilled, I have still the following questions to ask:

1st. When we believe that we have the correct range at 5000 yards, but have deceived ourselves by reason of the great distance, what will we do then? If for example the range obtained is really 300 yards too great,

although we are certain that we hit the mark (and this is easily possible at 5000 yards), we will then fire at a range 300 yards too great when we occupy the new position at 2000 yards from the enemy. He will decimate us without being injured in the least by our fire, for we will have fired over his head in place of silencing him by an effective fire.

2d. What is to be done if the enemy's artillery which appeared, at a distance of 5000 yards, to be posted upon one single and the same line, is really posted at different distances? Our regulating our fire in advance will be of use only against a single one of his batteries while the others will crush us.

3d. If, advancing at a gallop, or at full speed, or at no matter what gait, it is found to be impossible to find at once the second position, what should be done then? This may very easily happen, for, seen from a distance, the terrain has a different appearance from that which it presents when traversed. I have but to remind you, a devoted hunter, of the sport of partridge shooting. How many times has it happened that a partridge falls in the potato field by the side of a certain flower; but when you endeavor to find this spot, deceived by other similar flowers, you spend half an hour seeking vainly for the game? Go then with your batteries at full speed and search for a half-hour for the position you wish to occupy. During this time the enemy will have destroyed you.

4th. Seen from behind only, the new position will have appeared to you to be suitable for your purpose, but having reached it you may find that from it it is impossible to see the enemy. What will you do then? You go here and there, continually under the fire of the enemy's artillery, seeking a position. It is the worst thing that could happen to you.

5th. Suppose that you find your position but discover that but one battery (perhaps but one piece) can be placed there? The configuration of the ground is such that the other batteries must post themselves at varying distances to the front or rear and therefore cannot use the range you have obtained. One only of your batteries, in this case, will do good execution, while all the others will hit nothing and will suffer great loss.

These are some of the disagreeable events which will embarrass our fire and which will even render it absolutely ineffective if we follow out the proposition of certain sanguine ones who just now are strongly in favor of the method of proceeding that I criticise. They demand that we go forward, our pieces loaded with shrapnel, which, therefore, must have been set to the estimated range, and whose first discharge, if the unfortunate circumstances given above should occur, would be absolutely lost. If we charge with shell and are constrained to put the pieces in battery upon some point other than the one selected, we could change the range, but once that the shrapnel fuse is set there is nothing more to be done after the projectile finds itself in the piece.

Let us return once more to the battle-field of Königrätz and the situation which has already served us several times as a basis for our demonstrations.

The defender's artillery stands upon the heights of Lipa, that of the assailant upon the mount of Roskos, and this last has found the range to be

4400 yards. The assailant's infantry has seized the passages over the Bistritz, has occupied the wood of Skalka, and has penetrated into the forest of Hola. This infantry has been warned that its artillery will fire upon the salient ridge which descends from Cistowes toward the wood of Skalka, and has refrained from occupying it. It is believed that a point can be found upon this ridge at 1950 yards from the mount of Roskos whence the enemy posted at Lipa can be reached, and of this point the range is obtained. A poplar tree upon the ridge is clearly defined against the horizon, so fully that no error is possible. There can be no question of advancing at a gallop, for the Bistritz must be crossed. But near the wood of Skalka a crossing place is found which lies in a dead angle because the enemy cannot see it from Lipa. It is there that the river is crossed, and, forming battalion after battalion, front into line, the poplar is reached. Can we really see the enemy from this point? Can *all* the batteries see him? Consult, in the description of the battle of Königgrätz, the passage which describes this part of the theatre of operations, and you will see how many times our batteries had to change position because they could not see the enemy. In the case which we have assumed to be ours the wings must advance farther than the centre, thus forming a semicircle, in order to be able to fire. But if, according to our supposition, the pieces are loaded with shrapnel the fuses of which have been set, there remains nothing to do but to fire into the air, and in this way you will have betrayed your presence to the enemy before you are ready to begin your effective fire.

I am perfectly willing to admit that the case may occur in which the second position has been found; the position, which, later, our infantry has occupied; and that it has been reconnoitred. That a suitable place for artillery is found, covered, situated behind a hedge surrounding a village, or behind a height; and that the pieces can reach it under cover and wholly without suspicion on the part of the enemy. But such a position will rarely afford space for more than a single battery. Let a single battery be brought there, but without loading the pieces beforehand. Once it is established without discovery by the enemy begin by thoroughly mastering the position with reference to the enemy and, once perfectly sure of correct conclusions, it can surprise him by opening upon him with rapid fire, perhaps even following immediately with shrapnel.

I believe that a single such battery, if it have in its favor the assistance of the most favorable circumstances, could obtain a surprising, even a decisive, effect upon the result of the artillery duel.

But you must agree that the assistance of a number of favorable circumstances is indispensable, and hence that the rule cannot be established to proceed always in this way. This evolution will fail ninety-nine times out of a hundred, above all if the force engaged in it consists of more than one battery, that is to say, it will bring about the destruction of an artillery line which advances in this way.

Know you the saying the Berlinois employ at random? "It is a beautiful dream, but things do not happen that way."

C. The proposition has been made that immediately after going into battery in this second position which it is proposed to reach by advancing

at full speed at no matter what cost, perhaps leaving behind two-thirds of the pieces, a salvo of shrapnel should be fired. This proceeding will surely result in nothing but an absolute waste of ammunition.

I am in general strongly opposed to artillery salvoes in action.

A battery, with its loading, fuse regulating, pointing, firing, observation of the result, and regulation of the fire after each discharge,—each of which numerous functions is performed by a different individual and all of which must work well together if the mark is to be reached,—constitutes a machine so complicated, so ingenious, that it is only by controlling each of these operations with the greatest attention that the desired result can be obtained.

As soon as haste and precipitation take the place of calmness, so soon do the men feel themselves to be no longer under control and therefore fail to perform exact service. It is so on the drill ground,—how much more so before the enemy.

If all the pieces shoot wildly in firing a salvo and but a single projectile reaches the mark, which of the guns will the captain take for a guide? After a salvo he cannot know which of the six pieces was correctly pointed. When, on the contrary, he shall have himself controlled shot after shot, and can reckon with each piece whenever a projectile goes wide of the mark, then the cannoneers will take much more care to load carefully, to give the proper elevation, to set the fuse exactly, to point well, etc., etc. In this case only will the captain exercise that control which will cause it to be said of him that "This man is master of his fire."

Believe me I myself know how difficult it is to control the firing in all cases. It suffices to have a piece miss fire, a cannoneer killed as he is about to fire, or any other derangement of this kind, and immediately another piece will fire hastily, and if the captain does not interfere promptly, if he does not display a draconic severity, the "fire at will" will follow, a fire that our regulations do not recognize, in which no further observation is taken, which is without proper elevation, in which often the pieces are not even pointed, and from which no result is obtained but an impenetrable smoke.

I rely only upon the one kind of firing which, with the closest attention, begins at that wing where the captain stations himself, field-glass at eye, shielded from the wind. He will observe each shot and can interfere so soon as a projectile is seen to be a "deserter," for the succeeding shot must not be fired until the last one has been observed.

This is certainly what the regulations require, for they go so far as to fix for the rapid fire a minimum interval of six or eight seconds between shots. But in six or eight seconds the projectile will traverse the greatest distance at which, in my opinion, a battery should be posted in opening rapid fire, (from 2700 to 3300 yards).

By means of salvoes no more projectiles will be sent into the enemy's ranks than with a rapid fire of this kind, for an interval of at least 36 to 48 seconds must be left between salvoes if it be desired that the men aim well.

A fire by wing, well regulated, will also throw as many projectiles into



the enemy, with this difference, that it produces a better effect, and that, with shrapnel fire, if change in time or elevation become necessary after the pieces are charged, not so many projectiles will be thrown away in pure loss.

Many of the causes which, in my opinion, render useless and even injurious the artillery salvo, had their effect without doubt upon the fire with shell at the time the captains under my command fired at the moving target by battery and then by wing in order to institute a comparison between the two, and did not reach the mark in firing salvoes, as I have written you heretofore.

This is why I am made uneasy when I read and hear talk of the brilliant results expected in the combat of artillery with salvoes, particularly of shrapnel.

I greatly fear that this is a most grave illusion.

It is grave not only because an attempt which fails exercises a most pernicious effect, but because when all the batteries shall have fired ineffective salvoes they will then be without defense. It will be necessary for them to begin again to obtain the range, and, in this way, the enemy will gain considerable time.

Our adversaries in the war of 1870-71 had conceived in regard to the mitrailleuse these same absolutely vain hopes. Not but that here and there these pieces had a truly striking effect. In one of the engagements fought at Le Bourget a single discharge of mitrailleuse killed 22 horses of the 2d Horse Battery of the Guard. But the greater part of the time our men disdained the fire of the new arm. This could very well be the case also in regard to the salvo of shrapnel. Here and there it might produce considerable effect, especially if the men fire calmly and with great attention, but in the greater number of cases it will result purely and simply in a useless expenditure of ammunition.

I also, as I wrote you in one of my letters, have used a battery salvo in action, not for the effect it might produce, but solely to measure a distance. It was at Sedan. But we did not fire precipitately so as to load as quickly as possible afterwards. On the contrary we proceeded with deliberation and the captains were required to control the pointing of each of their pieces so that no error should be made. Later, all the batteries of the 1st Light Artillery battalion fired a salvo together, solely to give to General von Pape the concerted signal to advance with the infantry against the wood of Garenne, upon which, from that moment we ceased firing.

The regulations allow also the battery salvo, in paragraph 200, for the purpose of giving a more certain indication to him who observes the fire, in the case in which he could not obtain it from a series of single shots. They do not speak of the salvo as a means of combat, on the contrary, in paragraph 203, the warning is given that care should be taken to avoid haste in opening fire.

In the pamphlet already cited which bears the title "Upon the management of artillery at the manœuvres and in action," the following proposition is made. The battalion will be caused to fire salvoes by battery with different elevations, the first battery firing, for example, at 2000 yards, the

second at 2200 yards, etc., so as to obtain rapidly, and from the very moment of opening fire data which can be relied upon for regulating the fire. I acknowledge that this seems to me to be good. Only I would make it a condition that the artillery should not be moved to the front with loaded pieces and sights set, and that the fire should not be opened hastily, otherwise the men lose their calmness and are led on to fire with too great haste. I would demand that this method of proceeding be applied only in the case in which the artillery has been successfully posted behind cover without having been discovered by the enemy. Then the pointing of all the pieces one by one can be tranquilly controlled and consequently there will be some certainty as to the effect of the salvo.

The distances at which the artillery duel becomes decisive (from 2200 to 2700 yards) are so considerable that, in almost all cases cover can be found, if only for a few pieces, cover which can be reached without discovery, so that the enemy will not be aware of our presence until we open fire. He will more surely fail to discover us if other batteries, already firing at greater distances, attract his attention.

D. You wish to know what I think of the formation of grand lines of artillery in *échelon* by battery.

This is much in favor at the present time when the wind blows across the front and drives the smoke of our battery in front of the adjoining one so that it becomes very difficult to observe the effect of the fire.

Such a direction of the wind is certainly a great inconvenience. At Sedan especially I was much annoyed by it, but there it was impossible to form in this way, our positions being imposed upon us by the configuration of the crest upon which we were established.

This will often be the case.

At the beginning of the battle of Sedan, Scherbening, as I have already written you, went forward with his batteries in *échelon* at 200 paces. In 1866, at Blumenau he had adopted this formation with success. But he did not follow this method because of the direction of the wind, but to lead the enemy into error in regard to the elevation he should give his pieces. When we were once solidly established, our fire well regulated, and when we were for the moment forbidden to advance further, the batteries posted themselves nearly in line with the leading one. In this way a perfectly free field of fire was obtained for all the pieces, and the unpleasant feeling caused among the men when they see certain batteries posted farther from the enemy than others, was avoided. I am therefore of the opinion that, in the rare case in which the terrain will permit the formation in *échelon*, it should only be adopted after mature consideration, and as a temporary expedient.

E. I agree perfectly with those who say that the attempt should be made to take the enemy's artillery in flank or at least diagonally. Nothing is more demoralizing than a flanking or oblique fire where all the shots tell even when they go beyond the mark. The pieces of shell and the shrapnel balls whistle the whole length of the line amongst the pieces, limbers, horses and men, and produce a most fatal effect upon the morale of the troops.

At the battle of Königgrätz I was posted upon the heights of Chlum and had in face of me a line of artillery much superior in number to ours, but this line did not produce nearly so great an effect as one or two batteries did which were posted lower down between Sweti and Rosberitz and which reached us diagonally from our left.

We should therefore endeavor to extend our front so as to reach beyond that of the enemy, even if this be possible upon one wing only. Upon this wing we will very quickly silence our opponents, and then we can overcome our adversary by a successive flank attack, because it will be possible to give to a constantly increasing number of pieces an oblique direction upon the centre and the second wing of the enemy's line.

But a totally different proposition has been made, which is, that in the artillery duel between two lines posted front to front the pieces of one wing should not fire upon those directly in front of them, but upon the other wing of the enemy's line.

I believe that this mode of procedure requires too much of human nature. The observation and regulation of the fire upon the diagonal of the battle-field will present so many difficulties that the effect of the fire will be diminished in greater proportion than the advantage gained by the oblique fire will increase. Besides, if the battle-field be of great extent, it will be very difficult for the different chiefs to direct their fires correctly. They will make mistakes, and when one part of the line, through any misunderstanding whatever, does not follow out the programme traced for it, the other part will be crushed by the enemy. For this reason I consider this proceeding too artificial. In my opinion it departs too far from the simple methods which should be followed in war.

The battalion chief should assign to his batteries their different objects, objects which, usually, should be face to face with them; and, finally, I believe that the concise and well-defined rules laid down in the regulations upon the direction of the firing are amply sufficient.

F. Under the old regulations it was permitted to seek cover for the limbers in the vicinity of the battery, but the more recent regulations say nothing upon this point.

As for me, I have never permitted the limbers to leave their regulation positions behind their pieces in any of the campaigns in which I have taken part. I did not permit it because even the nearest cover in which it was possible to place them was too far from the pieces.

Cover for limbers ten paces from the left wing is certainly very near; but if the captain places them there the limber of the first piece will be 110 paces from its piece, and the soldier whose duty it is to carry projectile after projectile to his piece will have to go at full speed 220 paces for each shot fired.

But even when the limber occupies its regular position behind the piece very considerable effort is required of him.

Suppose that a battery fires 100 rounds per piece, which often occurs in battle (and it is even claimed that many French batteries at Solferino fired 300 rounds per piece) then, if the limbers are posted ten paces from the left wing, the soldier carrying the ammunition to the first piece would have

to traverse 22,000 paces more than his comrades. Besides, he would have to go each time the entire extent of the battery, a mark for the enemy's fire, and this would require of him nerves of much more than ordinary strength.

It would be possible to place the limbers under cover if in their place a "reservoir" could be arranged where ammunition could be obtained.

The proposition advanced by the author of the pamphlet from which I have already quoted upon the "Management of Artillery, etc.," seems very good to me for defensive positions which are certainly to be held, but not good for those which are to be occupied temporarily; those, for instance, taken by the artillery of a rear-guard.

This is what our author proposes. The limbers are to be placed a certain distance from the battery upon one of the wings. In their places a caisson, without horses, to be placed behind the second piece and another behind the fifth (or else one caisson behind each platoon). As by this means it will be possible to diminish the interval between the pieces grouped by half batteries or by platoons in order to shorten the distance to be traversed by the carriers of ammunition, the covering the teams in this way will not embarrass the service of the pieces.

Let us take up again the phase of the struggle upon the field of Königgrätz, which has already served us so many times for an example.

If the defender is resolved to fight a defensive battle at Lipa it will be of advantage to him to authorize his batteries there to adopt the method indicated. The assailant will find occasion to apply it in the case when he occupies a position where in all probability he will be posted for some time, or where he could maintain himself even if the situation should be modified. This will be the case for his artillery upon the mount of Roskos from the moment the position is assured by the occupation of the line of the Bistritz by the infantry, and while the foot soldiers are re-establishing the bridges. On the other hand, those of the assailant's batteries which, crossing the river near the wood of Skalka and occupying upon the other bank a position by no means secure, for the purpose of bringing about by their decisive action a decisive effect in the artillery duel, these, I say, could not post their limbers at a greater distance from the pieces than is allowed by the regulations.

Every one knows that it is desirable to have the pieces also protected by cover thrown up by the men. But here I cannot refrain from telling you, in regard to this point, of a very disagreeable thing which happened to me once in the course of a battle. We were accustomed at the grand manœuvres, on every occasion when there was time enough, to throw up intrenchments as cover for our pieces. The first time that I did this in action the wheels were driven so deeply into the freshly stirred earth by the recoil, that at the third shot the trail stood up in the air and the wheels and muzzles of the pieces were almost buried in the ground. There was nothing for us to do but to abandon our field works and post ourselves in front of them upon the original surface. In time of peace this inconvenience is not felt, because then the ammunition used does not cause such a recoil.

If then, in building field intrenchments, a muddy soil is found, as will

be the case the greater part of the time, platforms of thick plank will have to be built, without which the guns could not long remain in position. Therefore the natural surface is much to be preferred for emplacements for the pieces, and natural protection, such as heights, bushes, hedges, etc.

G. You ask me whether there is any necessity for horse artillery. In reply I must acknowledge that before the War of 1870, many of the generals and higher officers of artillery gave it as their opinion that, since the axle and carriage seats would carry all the cannoneers, the foot artillery (which was the name then given to mounted artillery) was fully able to take the place of the horse artillery. The horse artillery with its cannoneers horses was thought to furnish too large a mark for the rifled cannon with their accurate shooting, and it was thought that it might be advisable to suppress it entirely and to replace it with what was then called foot (now mounted) artillery; and this was also the opinion of many in high places whose advice carried great weight.

But the experience gained in the War of 1870 caused an entire change in these views.

I have already cited (see the 6th Letter) the statement of General von Dresky, that on the 6th of August he had already marched fourteen miles through the mountains with the corps artillery when, at half past three o'clock, he received the order to bring it to the front, and that his horse artillery took but three hours to travel twenty miles which separated it from the field of battle while the battalion of mounted artillery took an hour and a half more, and therefore arrived too late.

On the 16th of August he received the order to reach the battle-field at the earliest possible moment. The horse artillery reached the ground three-quarters of an hour before the mounted artillery, the distance, through a mountainous country, being nearly eight miles.

At Beaune la Rolande only his horse artillery reached the battle-field in time to take part in the action, and it had marched nearly thirty-three miles.

In regard to the battle of Sedan, I can say that the battalion of mounted artillery of the Guard was called to arms an hour before the horse artillery battalion, which for the night had been attached to the cavalry division. The latter was ordered to follow at its greatest speed and to rejoin the corps artillery for the action of that day. It did so so rapidly that it reached the field just as the mounted batteries were going into position, having travelled over eleven miles.

Certain of our horse batteries—even whole battalions—have executed with the brigades or divisions of cavalry marches truly enormous. I have had occasion heretofore to speak of some of them.

These marches could never have been executed by the mounted artillery.

In my Letters upon Cavalry I said to you that in future more still will be required of the cavalry than in the past, and I believe that all cavalrymen will agree with me in my views in this regard. When grand masses of cavalry shall have been specially trained in view of these greater efforts the mounted artillery will be even less able to follow them than it is now.

Then it is beyond question that the batteries attached to the cavalry will have to be horse artillery. But the corps artillery also has need of horse batteries, for the cases in which artillery is required to appear quickly upon the field of battle.

The ideal would be a corps artillery composed wholly of horse batteries.

You will say that the country cannot furnish a sufficient number of horses for the corps artillery in addition to those necessary for the cavalry, but I would at least wish that as much horse artillery should be authorized as the supply of horses in the country would permit of.

H. I also have heard the clamor for the suppression of the corps artillery and its distribution between the two divisions composing the army corps. This proposition has been advanced in pamphlets and in the military journals.

I avow that up to this time I have paid no attention to this question, but since you wish my opinion upon it I will give it.

It is in the artillery itself that the desire to see this modification introduced has arisen. It is very vexatious for the colonel commanding the divisional regiment of artillery to see his regiment cut in two at the moment of mobilization without his being able to make the slightest objection;—to see the regimental unity broken,—so important as it is, and that just at the moment when the arm is called upon to play a decisive part. But this is the single plausible reason which can be advanced in favor of the suppression of the corps artillery.

This question is really not wholly an artillery question.

You are astonished that I should say so—you find it paradoxical—but nevertheless I am right.

Now, that independent divisions of cavalry are directly under the command of the general-in-chief, the army corps (if you suppress the corps artillery) will be formed of two equal parts—its two divisions. The corps organization then ceases to be a necessity. The commander of the army will make his dispositions of divisions only, and the corps unit, with its commander, will be suppressed. The generals commanding the field artillery brigades will also be suppressed, as a matter of course. Hence we shall have army divisions, or army corps, having very nearly the effective strength of our present divisions, or what amounts to the same. But if it be decided to adopt this plan, the decision will not be made by the artillery but by the general staff, by the men who have the supreme direction of operations of battles. But the man who, amongst all army commanders, had in this respect the most of routine and of practice during all the period in which artillery played a rôle—Napoleon I.—has held the division of an army into army corps to be a necessity.

With us divisions were established in 1806, and this organization was found not to work well in practice. In 1866, in the First Army, four divisions were directly under the command of the general-in-chief, but after the considerable experience gained in this campaign this organization has not been maintained. I believe, therefore, that the army corps unit will be continued.

In a tactical point of view it would be very regrettable that the corps artillery should be suppressed. When the general commanding the corps brings it into action he will produce, by combining its fire with that of the divisional artillery, a much greater effect in precluding to the final decision. The fact even that a corps artillery exists, shows that it is not considered advisable to disperse the action of the batteries, but, on the contrary, to concentrate it upon the decisive point. In 1870 the general commanding the Guard, and his staff, so clearly indicated by the employment of the corps artillery that the action was going to be energetic, that in playing whist (we had during the long evenings of the investment of Paris time to cultivate the game) we had the habit of saying of a player who played a trump: "He brings his corps artillery into action." The young officers at headquarters said, laughingly, that the commanding general, when he received a report that obliged him to put himself in the saddle, invariably cried: "My boots and the corps artillery!" These are pleasantries, but they are characteristic of the prevailing ideas.

I agree with the colonels and find it regrettable that the regiments of divisional artillery should be cut in two, but in my opinion there is a means of remedying it in an absolute fashion. We now have less field artillery than our neighboring States have. If we do not wish to meet with bitter experience, I think it necessary to augment it. If we give to each army corps two batteries more than are now given them we would be able to form for each corps two regiments of divisional artillery—one for each of the divisions—and a regiment of corps artillery. The divisional regiments will contain two battalions of three batteries each, and the corps artillery three battalions of three batteries each. This organization will accomplish the object desired by the artillery, for it will then be no longer necessary to break up the regiments upon mobilization.

---

## COLONEL V. LÖBELL'S ANNUAL REPORTS.

Extract from COLONEL H. HILDYARD'S Compilation,

(*Journal of the Royal United Service Institution, No. 154.*)

### INFANTRY TACTICS.

THE year 1889 was of special importance as regards the development of infantry tactics. On the one hand, the introduction of smokeless powder in combination with that of a small-bore rifle, and, on the other, the revising of the infantry drill in almost all European armies, after the example of Germany, mark it as a year to be remembered.

So soon as the French infantry began to introduce smokeless powder and adopted the small bore, it became necessary for the infantry of other Powers to follow in its steps. In the absence of war experience, it is not possible to decide what influence its introduction will have on tactics. The numerous and thorough considerations of the questions by the light



of last year's manœuvres, and the experience gained on the practice ground, though of great value theoretically, do not allow of a definite judgment being arrived at.

But this experience warrants the conclusion that, if fresh elements have not been introduced into tactics, still the use of the new explosive will have altered in many particulars the importance of existing tactics.

The most evident advantage of the new powder lies in the small amount of smoke created, which allows of better aim and, consequently, better shooting. The absence of smoke undoubtedly allows of the better employment of the quick-firing arm. A further advantage is in the better leading of the firing troops, the clearer observation of the individual, and of the effect of fire. Unless required for other reasons, the absence of smoke also allows of the pauses, formerly considered indispensable during the period of rapid fire, being omitted. On the enemy's side it prevents his recognizing at once the exact situation of the defensive position to be attacked. In conclusion, the battle-field is rendered far more open to observation.

These advantages may be claimed equally by the troops employed in the attack and in the defense. Opposed to them there are certain disadvantages to be recognized. The uncertainty of the aim (determining the enemy's position) will be greater than formerly, which will detract from the advantage claimed for clearer observation. The difficulties of command will be enhanced by this circumstance; they demand a higher tactical ability and initiative from leaders of all ranks. The difficulty of recognizing the enemy's position will demand a more thorough reconnaissance, and render the command more than formerly dependent on reports of others.

It has been frequently maintained that the balance of advantage will rest with the defense on the introduction of smokeless powder. Certainly, the absence of smoke will benefit the well covered defenders more than the exposed attacking troops. The superiority of the defense in a prepared position, with a clear field of fire, will, when the assailants enter on a frontal attack, be greater than formerly. The attack will require more time, in order that the position, no longer defined by smoke-clouds, may be recognized, and the attack prepared by fire directed on it. It follows from this that the defense should never occupy sharply-defined positions, such as villages and the borders of woods. The attack will have to make more use of the ground to cover its troops and to prepare their advance more thoroughly by means of artillery fire. But the fact must not be overlooked that the defense, if it seeks to decide the fight, must make a counter-attack. The rôles will then be changed. From all this it appears that the relative values of the attack and the defense have not much changed. But it must not be forgotten that the value of the new powder does not rest alone on its freedom from smoke; of more importance is its increased power, securing a higher initial velocity, with its tactical consequences.

The increased power is considerably heightened, and, in fact, caused, by the simultaneous introduction of a small-bore magazine arm. We do not hesitate to attribute to this a far higher tactical value than to the adoption of smokeless powder. The low trajectory admits of the same accuracy of fire at 450 metres to 500 metres as was previously attainable at 250 metres;

practically, at double the distance. Then the penetration of the small-bore bullet on living and dead objects has been found by experiment to be far greater; at 100 metres it will pass through 4 to 5 ranks; at 400 metres through 3 to 4, and at from 800 metres to 1200 metres through 2 to 3. Lastly, the diminution in weight and size of the small-bore cartridge, which will admit of more ammunition being carried, has to be considered.

The general conclusions to be drawn from the experiences so far of the smokeless powder and the small-bore rifle are the following: The fire action will begin at far greater distances than formerly; fighting in extended order will be the only form adopted, not only for the opening and carrying through of the fight, but also for its decision. Movements of bodies of troops in the vicinity of the enemy's fire will be more difficult; columns must no longer be exposed to it. The extension of front of the fighting troops, no less than the distances between the several lines and the reserves, will be increased. Direct advance on the enemy, without his fire having been previously beaten down, will expose the troops to destruction. Frontal attacks without simultaneous pressure on the flanks will not secure any decisive advantage. The deployment will have to be carried out earlier owing to the increased difficulty of reconnaissance.

The spade will be more than ever an arm in the hands of the infantry—even during the attack. It may, at the same time, be noted that earth-works, such as shelter-trenches, etc., must be given a far stronger profile, looking to the increased penetration of the small-bore bullet. Whether night fighting will obtain increased importance, as is frequently maintained, is uncertain, for fire is of small importance on these occasions. In any case it is indispensable to accustom the troops to the peculiarities of fighting at night.

In Germany special attention continues to be given to the musketry training of the troops. A considerable sum of money has been taken for 1890-91 for the purpose of giving an extension to field-firing in varied ground, in which all arms will participate. It is pointed out that regular drill and practice grounds are useful for preliminary teaching; but that good training can only be attained by constant exercises on unknown ground with ball cartridge, the other arms being represented.

The year 1889 was of special importance for the French infantry. For the fifth time since the war the Drill Regulations have been altered, those issued the previous year having been withdrawn. The latest edition has the advantage of being shorter by 268 pages. It is divided into five *titres*. The most noticeable changes are to be found in Titre 3, "*École de Compagnie*." The formerly existing *école de demisection* and *école de peloton* are abolished. With the latter the old fundamental fighting formation of the company—*ligne de colonnes de peloton*—also disappears. Volleys in four ranks have been introduced, termed mass-fire. The company square is nearly like the German formation. An important change is that the company, when formed as a portion of other troops, whether in company column or in any other formation, can be deployed direct into the fighting formation, instead of having, as formerly, to form line of *peloton* columns first.

The deployment is carried out in the simplest way, without any preparation. The captain names the subdivision or subdivisions to form the skirmishing line or the supports, and gives the leaders the necessary instructions. The supports follow the skirmishing line at the increased interval of 250 metres. The front extends to about 150 metres, with a company of 200 rank and file.

The *école de régiment* contains a large number of formal formations. In a chapter on the "Fighting Formations of the Regiment, the Brigade and the Division, and the Functions of the several Lines," it is laid down that only general principles can be given, as it is not possible to lay down normal fighting formations, as these formations must vary with the circumstances.

The greater tactical bodies will generally be formed for the fight in two main groups, the strength of which will depend upon circumstances. The first forms the 1st and 2d lines, the second the 3d line; definite distances are not specified, but they are not to be too restricted. The front of a regiment is not to exceed 700 metres, of a brigade 1400 metres, and of a division 2100 metres, exclusive of intervals required for artillery. Each line has its special task. The 1st commences the fight, and carries it through; it does not manœuvre, and has not to think about the protection of its flanks. The 2d line maintains close connection with the first; it protects its flanks, reinforces it, or extends its line. It further carries out the attack up to the assault if the first line alone is not sufficient, and finally drives forward again those portions of the 1st line that fall back and renews, if necessary, the attack. The 3d line is the one to be employed for manœuvre, and it is retained under the immediate control of the officer in chief command. It is kept in hand to meet all unforeseen eventualities; it provides the troops to make or meet flank attacks; executes or repels great counter-attacks; it covers the line of operations; prepares defensive positions in rear, etc.

One of the most important portions of the *école de régiment* is that concerning the fight of a division. The division is supposed to be advancing on one road, accompanied by its small train, and preceded by an advanced guard. The division comes in contact with an enemy who has taken up a position, and five separate phases ensue.

1st. The cavalry, having completed its task of reconnoitring, falls back, clearing the front, and watches the flanks and rear, keeping on the alert to seize any favorable opportunity that may offer in the course of the fight.

2d. The advanced guard fights or takes up a position; the enemy is reconnoitred.

3d. The artillery fight takes place; the main body moves up into the fighting line. The 1st line covers the artillery, and enters on the fight with the enemy's infantry.

4th. Preparation by artillery fire; general attack. The battalions of the 1st line attack, as their first objectives, advanced points, such as villages, heights, hamlets, etc., which are to be seized, assisted by artillery fire. When captured they are to be prepared by the 2d line and the pioneers for defense. The regimental commanders have to watch specially the employ-

ment of the battalion reserves of the 1st line; the brigade commanders control the employment of the 2d line. The divisional commander indicates the position that the 3d line is gradually to occupy. The troops told off to attack the flanks conceal their march as long as possible; on reaching the prolongation of the enemy's line, they must act with rapidity and decision. The divisional commander directs the concentrated fire of the batteries on the decisive point. The direct attack follows with redoubled energy; so as to prevent the enemy evacuating his position, a portion of the artillery accompanies the infantry.

5th. The assault, pursuit, or retreat. The advance of the troops detailed for the flank attack into the fighting line is the signal for the general assault of the position. If successful the cavalry pushes forward in pursuit on the enemy's flanks. If unsuccessful, the third line, with the artillery and cavalry, has to cover the retreat.

In Russia, as in Germany, great attention has been given to firing with ball under service conditions. For this purpose detachments are formed consisting of 1 infantry battalion, 2 or 3 squadrons, and a battery, which manœuvre in accordance with a "special idea." Each infantry and cavalry soldier carries 12 or 15 rounds in the pouch, and the same number of rounds is carried in ammunition wagons (2 per battalion, 1 per squadron and battery). The battery has 9 to 12 rounds per gun. The exercise begins at a set of targets situated at about the distance that fire would be opened in war, and the advance is then made with fixed pauses at regular intervals.

Special importance has for long been attributed in Russia to night operations, in the belief that these will be extensively employed in future wars. They are, therefore, included in the programme of exercises for the troops up to the brigade. To facilitate assembly, each company has a lantern showing a different colored light, according to its number.

Detachments have of late years been formed in almost every regiment, of men selected on account of their handiness and power of marching, under officers having the same qualifications. Their functions lie in creeping through an enemy's outpost line, ambushes, and all the enterprises comprised in minor warfare. They have, further, to creep round the enemy's camp (especially at night) and alarm it in the rear, and they would take the place of cavalry in reconnaissance and scouting work in ground impassable for it. The report on the march of the 92d Infantry regiment at the camp of Krasnoe-Selo, gives a good instance of the great capabilities of these formations. After marching with the regiment over 26 miles, the detachment received orders to continue its march without a hot meal or any other relief for 48 miles more to the camp, which it was to reach within 24 hours; it actually performed this march in 21 hours.

The introduction of a small-bore magazine rifle into the Austrian army has been followed by the issue of new drill regulations for the infantry. Avoiding all hard-and-fast forms, it deals mainly with general principles well calculated to meet the requirements of the new arm. The necessity is inculcated for the most rapid and effective development of fire, the most skilful use of ground, while giving the utmost scope to the intelligence of the individual soldier and the initiative of the leaders.

The drill in the company forms the most important portion of the infantry soldier's training. The company is formed into 4 subdivisions. When these are placed side by side the formation is that of "deployed line"; when behind one another, at 6 paces distance, it is that of "company columns."

The battalions have 4 companies that work as such; there is no such thing as so-called battalion drill. There are only four normal formations: 1st, "mass," when the companies are formed, side by side, in column with 3 paces interval; 2d, "line of columns," when in the same formation with deploying interval; 3d, "deployed line," the companies being in that formation with 3 paces interval; 4th, "column," the companies are in column behind one another at 9 paces distance. Changes of formation can be made in every company in any direction, at the halt or on the move. Movements under fire are always by the shortest way.

The battalion commander is responsible, generally speaking, for the proper application of the fire, for its concentration on selected objectives, for the reinforcement at the proper time of the companies engaged, and for the supply of ammunition.

In action, the battalion is divided into the companies ordered to form the fighting line, and the rest as a battalion reserve, from 300 to 400 paces from the reserves of the companies in the firing line.

The formation of the battalion reserve depends upon the nature of the ground and the effect of the enemy's fire. The movements of the companies in the firing line are to conform to those of the company of direction.

The regiment is formed of from 2 to 4 battalions. Only two formations are provided for assembly: 1st, the "concentrated formation," in which the battalions are formed in mass or column in one or several lines with intervals of 10 paces and distances of 40 paces between lines; 2d, in "column," when the battalions are formed in column, one behind the other, at distances equal to the front, and 10 paces. In "fighting" formation the battalions are grouped in 2, 3, or more, seldom in 1 line. The rear lines form the regimental reserve, and on first deployment the distances between lines are about 500 paces. The movements in "fighting" formation from medium distances (1000 to 5000 paces) are to be either directly to the front or to the rear, and to be regulated by the battalion of direction. No fixed distances are given for the extension of the front.

The second part of the regulations deals with the "fight." It is indicated that fire is the principal means of carrying it through; close order is only to be employed for the reserve and for feeding the firing line; also for those moments when a powerful impulse is required to push forward the skirmisher line, and when a decisive attack is to be made. Every fight is to be carried out on a regular plan, and all the available forces are to be brought up to the decisive point. The leading should never be passive; every commander must be impelled by the desire to adopt an offensive, energetic advance; in doubtful cases, the bolder action is always the best. The extension of the front must not be greater than is required for the greatest possible development of fire. The encounter, resulting from the

meeting of two opposing forces on the march, must be distinguished from the attack of a regular defensive position.

As is also the case with the German regulations, it is distinctly laid down that "definite formations cannot be given for the attack—none are to be adopted as normal formations." In connection with the defense of a position it is laid down that the pushing forward of troops in front of the general line of defense, for the purpose of offering temporary resistance, is to be avoided.

The Austrian regulations, also, attribute increased importance to the use of the spade, as a result of the introduction of the small-bore rifle and smokeless powder. To meet this, a special instruction has been issued directing that, in the construction of hasty intrenchments, the top of the parapet is to be made somewhat broader than the breadth of the spade. A further result of the small-bore arm is that, without any addition to the transport, 360 rounds, or 90 more than previously, are carried; of these the soldier carries 140 rounds—60 in the cartridge bag, 80 in the three pouches. The rest are carried in the ammunition wagons, the ammunition columns, and the field depots. As in other armies, field-firing has received a great development, and with excellent results.

#### FIELD ARTILLERY TACTICS.

The year 1889 was an important one in all armies, but especially in the German. The most important points were, the general introduction of smokeless powder, the issue of a new drill book in Germany, and the new organization of the German field artillery. Though the actual adoption of smokeless powder has not been carried out in all the armies, still experiments with it were so far advanced that there is no doubt it will be employed in any future war. It has been shown that, though there is still a smoke-cloud, it is so thin that a skirmishing line cannot be seen by it beyond 200 to 300 metres, and, though visible with artillery fire at the moment of firing, it disperses at once. Artillery therefore gains the advantages of clear sight, both for observing and laying, and of being much less visible to the enemy, provided it is judiciously posted, so as not to show up on the sky line. The advantages will be as against infantry and cavalry; against artillery the enemy's guns will be similarly situated. It follows that the artillery engagement must be more thoroughly carried through than before, until the guns of one side or the other are completely crushed. Even after this has been done, the preparation for attack by artillery fire on selected points of the enemy's position must be more complete than formerly, for the fire effect of unshaken infantry armed with the small-bore magazine rifle and with smokeless powder will be enormous.

But there is another advantage gained for artillery by the use of smokeless powder, that the intervals between batteries and guns can be materially diminished, so that positions for massed batteries will be more easily found.

In case of necessity, guns can even be placed in a second line, in advance or behind the main artillery line, if safe positions exist.

The new German Drill Book (1889) starts from the fundamental princi-



ple (as did the Infantry Drill Regulations) that in war only what is simple leads to success, and consequently a number of formations which were superfluous in the field, and were entirely reserved for the exercise ground, have been swept away. But, on the other hand, the complete mastery and precise execution of the few simple formations that are necessary is insisted on. Open division column as well as half column are omitted; the only formations for movements are line at full intervals, battery column (of single guns) and, under certain circumstances, division columns. Whereas former regulations were based on the peace battery of 4 guns, the new ones deal with the war battery of 6 guns and the 4 wagons forming the first line.

The principles of employment in battle have not changed materially. The instruction is new by which, before advancing into the first position for coming into action, a preparatory position is to be taken up where all the preparations for favoring fire being opened rapidly are to be made. Later on, batteries coming into action in open ground are to avoid as far as possible taking up a position near and in line with a spot already fired on by the enemy's batteries. The battery commanders are to precede their batteries, and to accompany the brigade-division commander to settle on the position to be taken up; they then return, and lead their batteries into it. The brigade-division commander remains in the position to observe the enemy.

As regards the supply of ammunition, that in the limbers is to be left intact as long as possible. The ammunition wagons of the first line move up to the line of guns without waiting for the order, and are placed behind the right flank gun of each subdivision. The limbers can be taken back to a more retired position, so that the horses may not be exposed to fire; they are joined there by the teams of the wagons.

In a *rencontre* engagement in which neither side is holding a selected position, the first points are rapidity in movement and in firing, so as to crush the enemy's artillery fire from the outset. In attacking an occupied, and perhaps prepared, position, it must be borne in mind that the only chance of success lies in establishing a superiority in the artillery fire. It must be especially insisted on that, to prepare effectually for the infantry attack, it is necessary for individual batteries to accompany the advance up to the shortest ranges, and that, looking to the moral support this will afford, losses are not to be shunned.

In the defense, a preparatory position is recommended, even when the position is artificially prepared. If possible, the position should be improved by preparing the communications, ascertaining ranges, the construction of earth works for the protection of the guns and men, improving the field of fire by clearing the ground, and the construction of masks. There should be an ample supply of ammunition in the immediate vicinity of the guns. As a rule, the whole of the guns will be directed in the first instance on the enemy's guns; but they must be turned on the infantry the moment they begin to advance, regardless of the artillery fire.

#### TACTICS OF FORTRESS WARFARE.

The two subjects that have attracted most attention have been the application of smokeless powder, or, rather, powder that produces a thinner



smoke-cloud than that in use, and the employment of armored towers in the field and in fortress war. In a lesser degree, the advantages and disadvantages of the new powder when employed with an army in the field apply also to fortress warfare. The attack will have the advantage of being able to command and direct operations with greater clearness and certainty. The defense, on the other hand, will be freed from the hindrance to aiming of the thick smoke-clouds that in some conditions of atmosphere now interfere materially with the efficiency of fire. In other directions, the conditions applicable to a Field Army really apply equally to fortress warfare, which is now closely assimilated to other fighting, by the changes of position of the fortress and siege artillery.

The construction of the Schumann armored towers and armored carriages, of a sufficiently portable character to allow of their employment in the field, is another step towards the conversion of operations in the field into a war of positions. Their value for the strengthening of a weak position, or of a position occupied by an inferior force, is undoubted. Assuming their employment, it is evident that it must be followed by the presence with an attacking army of a heavier artillery than that of the batteries now employed. The moveable armored towers are designed for quick-firing guns, and they have been found proof against the existing field guns and even shell from the 15-cm. howitzer.

The quick firing guns are of 37 mm. calibre, with a range of 3400 metres, and 53 mm., with a range of 5600 metres, and the latter can fire from 35 to 40 rounds a minute, the case shot fired containing each 80 bullets.

In other directions, comprising the organization of special fortress troops, the development of telegraphs and telephones for perfecting the communications, the use of balloons for observation, and the electric light for searching ground at night. considerable progress has been made.

---

## THE RESURRECTION OF THE LANCE.

By CAPTAIN G. J. YOUNGHUSBAND,

QUEEN'S OWN CORPS OF GUIDES.

*(Journal of the United Service Institution of India.)*

WHEN the foremost military nation in the world decides emphatically in favor of the lance as the most suitable arm for modern cavalry, it behooves other nations to examine the causes which have led to this resurrection of the old and time-honored queen of weapons, and, having so examined them, to regulate their own armament in accordance with the logical finding which that inquiry teaches them.

It goes without saying, that the best weapon to place in the hands of the cavalry soldier is an arm which he knows best how to use in battle, and which accords best with the national characteristics and temperament of

him who wields it. His most indulgent friend can hardly say that the ordinary German or French cuirassier is a "born lancer," and therefore the discovery of a very strong inherent superiority in the weapon itself must be considered answerable for the recent rearmament of such a large portion of the cavalry in Europe.

To trace the history of the lance, from its birth amongst the wild eastern hordes who invaded France centuries ago, up to the present year of grace, is to follow it through a very checkered career. At one moment we find it raised high above all arms, the sovereign weapon, which only knights of fame and lofty lineage are entitled to carry in the war. At another it has fallen from its eminence, and, shorn of gay pennant and shortened by a yard, we find it in the hands of the hireling pikeman instead of in that of his mounted lord. Its popularity ebbs and flows generation after generation and century after century, but however low it may fall, *resurgam* is its motto, and again and again it raises its proud head, and for a period, sometimes brief, sometimes long, resumes its way.

Its origin is somewhat plebeian: it did not burst upon the world in its present graceful queenly form; on the contrary its first ancestor was a common javelin four or five feet long, used either as a missile or as a lethal weapon; much as the Zulus and Arabs use their spears nowadays: to be kept in hand as a rule, but to be thrown when occasion required it. When cavalry began to be used in battle, this short spear was by degrees lengthened and increased in size, till it became the weapon which was used by the knights of the mediæval era, and with which pictures of that period have made us familiar. As the size and weight of the lance increased, the thickness and consequently the weight of the armor worn by horse and man to resist it, increased in proportion, till it came to this pass, that horses of such size and strength were required to carry the burden, that only men of wealth could afford the luxury. In days when might was right, and wealth went to the strongest, wealthiest men were naturally the strongest, and so it came about that only knights and persons of knightly lineage carried the lance, till by degrees it became the badge and synonym of their rank. As long as wealth remained with the knights, the lance was their weapon, but when years of exhausting and impoverishing wars had well-nigh ruined the nobility, they could no longer afford to buy and keep up the costly stud of giant horses required to mount them in all their knightly paraphernalia, so that with their wealth died also the lance; for poverty and the queen of weapons could not live together. This was in the reign of Henri IV. of France. Towards the end of the 16th century, for nearly two hundred years the lance almost disappeared from the regular armies of Europe, until the genius of the great Napoleon, a constant and careful reader of the history of the past, again brought before a dazzled world the old knightly weapon shortened and lightened, and improved into its present shape. History and experience taught him, that the only way for cavalry to oppose the lance was with the lance, and therefore we read that, when Napoleon found that his best cavalry armed with the sword was unable to face the lances of the enemy, "*il sentit le besoin d'opposer les lances français aux lances des hulans et des cosaques.*" Up to the battle of Waterloo there

were no lancer regiments in the British army; it was the lances of our enemies in the retreat from Quatre Bras to Waterloo which taught us the value of the weapon, and lancer regiments were for the first time introduced into our army. During the long period of peace which succeeded the Waterloo campaign, theorists again held their sway, and the lance declined in favor till it was entirely abolished in the French army, and reduced to a minimum in others. The Prussians alone have steadily cultivated and fostered the growth of the lance during the last thirty years; and from Sadowa onwards there has been a slowly but surely increasing conviction amongst the military scientists of Germany, that the lance is the best weapon for cavalry, with the result that to-day we find it the most prominent arm in the German cavalry. Far be it from me to join with those who think that a special Providence directs the working of the German army, and that all things and all nations German are heaven-born and therefore infallible. I am merely in the interests of the lance pointing to the fact, that the consensus of opinion in an army whose numbers run into millions, has, after twenty-five to thirty years of deliberation, decided in favor of the old queen. Whether the decision is considered wise or not for a short service army is quite another question.

Such, briefly, is the history of the lance in Europe up to the present day. In India its rise and fall, only to rise again, has been, during our occupation, much on the same lines. During long periods of peace the lance's friends are gradually but apparently convincingly argued off the field, but when the day of battle comes and sword has to meet lance, the superiority of the latter forces itself on our notice. We conquer India with the sword, but having done so, we arm ourselves with the lance of our enemies. A widespread and terrible mutiny has to be suppressed, irregular cavalry are hastily raised and equipped, and most men use the weapon of their fancy. What is it? In nine cases out of ten the lance: and even amongst the British officers, there are few who have not a hog spear handy when the fight begins. A cavalry regiment is ordered to the Soudan, and at a moment's notice is armed with the lance in preference to its own weapon. Slowly but surely in India, as in Europe, the lance is carrying the day, and it is to aid it however feebly in its path that this paper is written.

Let us take quite dispassionately both sides of the question, and, having done so, apply our summing up to the case in point. One of the most determined opponents of the lance who has written on the subject in latter days is Captain L. E. Nolan, 15th Hussars. This book, "*Cavalry, its History and Tactics*," most valuable though it is, was published in 1853, and does not therefore embrace the experiences gained in wars which have taken place since that date, that is from the Crimea downwards. To give his own words, his impeachment of the lance is based on the following propositions:

1. " \* \* \* A lance is useless in a *mêlée*; the moment the lancer pulls up, and the impulsive power is stopped, that instant the power of the weapon is gone \* \* \* ."

2. " \* \* \* The lance is not a dangerous weapon in *all* hands, and therefore unfit for soldiers \* \* \* ."

3. " \* \* \* Let us allow, for the sake of argument, that a lance of a proper length, handy, well poised, and held at its centre, reaches further beyond the horse's head than the point of a sword held at arm's length; in what way can this conduce to success, when it is universally acknowledged that it is the superior impetus and speed of one of the advancing lines which overthrows the other, the weapons only coming into play afterwards?  
\* \* \* "

Captain Nolan has certainly got the pick of the objections to the lance. The other objections are of a minor nature, and in disposing of the above, we shall incidentally dispose of them too.

Taking Captain Nolan's second objection as our text, an answer to the other objections will be gradually worked out. "The lance is not a dangerous weapon in *all* hands and therefore unfit for soldiers." This remark sounds the same key-note as is touched upon in our reference to the German cavalry. The best arm for a soldier is the arm he can use best, which inspires him with the greatest confidence, and which morally and physically aids him best in defeating his enemy. To put a lance into the hand of this man or that, Englishman, German, or Frenchman, and to say, "now you are a lancer," is not all that is required to make a lancer. The soldier must feel himself that he is wielding a familiar weapon, and one which he prefers to any other. National proclivities, long training, activity, horsemanship, are all necessary adjuncts to proficiency with the lance, and therefore Captain Nolan's argument is a very strong one, more especially when applied to the short service armies of Europe, where it takes a soldier all his time to learn to ride fairly well, and to know his drill, without expecting him to become a proficient with such a difficult arm as the lance. But continental armies, in spite of this great drawback, have decided in favor of the lance. "Successful practice must override antagonistic theory;" and practice has apparently taught them that a soldier, even though a short service soldier, is better armed with a lance than without one. This being so, the argument rebounds with redoubled vigor on our own Indian cavalry. There is the exact material which the most enthusiastic votary of the lance could wish for. Long service soldiers, fine horsemen, mounted on wiry active horses, whose national weapon, if any, is the lance, and whose whole bearing and characteristics savor of that dash and *elan* which is the heaven-born lancer's rôle. Because the lance is not a dangerous weapon in *all* hands, German, English and French, it seems certainly a somewhat drastic ruling, that it is therefore unfit for all soldiers, be they Cossacks, Poles, or Punjabis.

It has always been a strong point against the lance, that, in the *mêlée* which results from most cavalry charges, the lancer, being possibly brought to a standstill, can no longer use his lance with effect: to be effective he must be moving at speed. But every lancer is armed with a sword as well, furnished him for that very purpose, to finish the work that the lance has begun. This argument gives the opponent to the lance another opening, — "What is the good of a lance, if directly you get into a fight, you have to throw it away? Surely it is an argument against it that, directly you are in difficulties, you have to fall back on the sword." To show the shallow-

ness of this reasoning, we have only to put one or two simple questions of the same nature.

"What is the good of a carbine, for you don't use it in a *mêlée*?" "What is the good of carrying 40 rounds of ammunition, when no authenticated instance of any regiment having used an average even of 10 rounds is recorded?" "What is the good of a sword, when we know that only two per thousand of the German wounded were wounded by the sword?" and so on. What we want to do is to arm the cavalry soldier with a set of arms (since a single arm is not sufficient in modern war), which will make him most formidable at all times and under every situation. If the lance is the best weapon for charging at speed, and in pursuit, by all means give the man a lance; if a sword is the best weapon in the *mêlée*, give him a sword too; if a weapon is required which will strike where sword and lance cannot, give him a carbine. The three are such entirely distinct and separate weapons for distinct and separate uses, that I think we waste time and lose sight of the main point in view, if we wander off into endless arguments as to whether the lance or the sword is the better weapon. My proposition is that both are excellent weapons, and that it is as bootless to compare the lance with the sword, as it would be to compare the sword with the carbine.

The lance is to cavalry what the bayonet is to infantry. To return for a moment to the third point raised by Captain Nolan, that "it is the superior impetus and speed of one of the advancing lines which overthrows the other, the weapons only coming into play afterwards." Very possibly so, but the line of argument taken infers that the lancer is always the one who is going slowest, and therefore not only is he knocked out of time by the speed and impetus of the opposing swordsmen, but in the *mêlée* that follows he is defenseless. The inference too, is, that two bodies of cavalry hit each other in charging like two brick walls on wheels, and that the brick wall that goes fastest knocks the other over. All the effects of ground, position, and *morale*, are quietly ignored. Allowing, however, that in some future state cavalry do charge with the solidity and regularity of brick walls on a specially prepared battle-field, it stands to reason that the brick wall furnished with long spikes will knock over the brick wall furnished with short spikes before the latter reaches the former. Putting aside vague theories, let us each, infantryman, artilleryman, or cavalryman ask ourselves the simple question: "In the day of battle would you rather see a regiment of lancers or a regiment of swordsmen charging suddenly down on you? For your own side, would you rather see a regiment of lancers gallop past you to reap the effects of your victory or a regiment of swordsmen? Which instinctively strikes you with a feeling of awe and fear in defeat? Which fills you with a feeling of pride and confidence in victory?" I think few who have stood on the field of battle and watched the two will take long to decide. "*Une forêt de lances inclinées sera toujours d'un puissant effet moral sur l'ennemi*," as an officer writes from the bloody field of Königgrätz.

That brings us to one of the strongest points in favor of the lance; its great moral effect. It is all very well to pooh-pooh and ignore this most important factor, to say that moral effect is nonsense, and that, after the

first encounter, common-sense teaches the soldier to discriminate between real effect and moral effect, I have heard people say that artillery is nothing but a gigantic bogey used to frighten the enemy, and bear out their statement by showing how very small the result in killed and wounded is from artillery fire. Quite so, but for all that, its moral effect is undoubted, and no nation dreams of abolishing its artillery because it doesn't kill enough people. A dead man is less harmful than a frightened man, for death in battle is not contagious, whereas fear is to an appalling extent. Even so with the lance, its bitterest opponents unite in acknowledging that the lance has a very great moral effect. It will be objected by many, that its moral effect will vanish, if the lance is placed in the hands of men who are not experts with it. I quite agree. The reputation of the lance has been made by lancers born and bred, by the knights of old, by the Poles, by the Cossacks, by the wild horsemen of the East, and again and again has that reputation been shattered by amateurs, who took to the weapon and found, not it, but themselves, wanting. The French lancers in the wars of Napoleon often slung their lances and drew their swords; it was a strange weapon to them. The New York lancers in the 1863 war, in charging through a thin wood forgot to raise the point of their lances, and about four-fifths of them were swept off their horses; their lances catching between two trees, and forming thereby an impassable barrier for their bodies, whilst their horses galloped on from under them. The moral effect very naturally departs, when lances are thus unfavorably handled; but it is hardly fair to condemn the weapon wholesale in consequence. De Brack, after a good deal of sound argument in favor of the lance, sums up in favor of having the front rank of each regiment armed with lances and the rear rank with swords. Another author advocates having two squadrons of lancers and two of swordsmen in one regiment. The Italians go further, and advocate the formation of brigades, to consist of one lancer regiment and one regiment of swordsmen. Martray, though acknowledging the excellence of the lance, deprecates its use in a short service army. A lancer should be a man born to the weapon or with long service to learn it in. Montécuculli, the great advocate of the lance, perhaps argues too much from the lance *vs.* sword point of view, a line which we have already deprecated. An anonymous writer, who was urging the French king in 1756 to re-arm his cavalry with the lance, states that the French cavalry had always filled a more glorious rôle with the lance than with the sword. As far as our researches have led us, Captain Nolan stands alone in absolutely discountenancing the use of the lance by all soldiers. The very large majority of writers, both practical and theoretical, favor the lance as a weapon for cavalrymen, whoever they be; whereas an overwhelming consensus of opinion points towards arming men born and bred to use the lance with that weapon.

\* \* \* \* \*

The greatest success attends those who profit by a study of the errors of the past, learning thereby to avoid them, not those who, ignoring the past, follow unheedingly the same path as their predecessors, falling into the same errors and reaping the same reward.



## Military Notes.

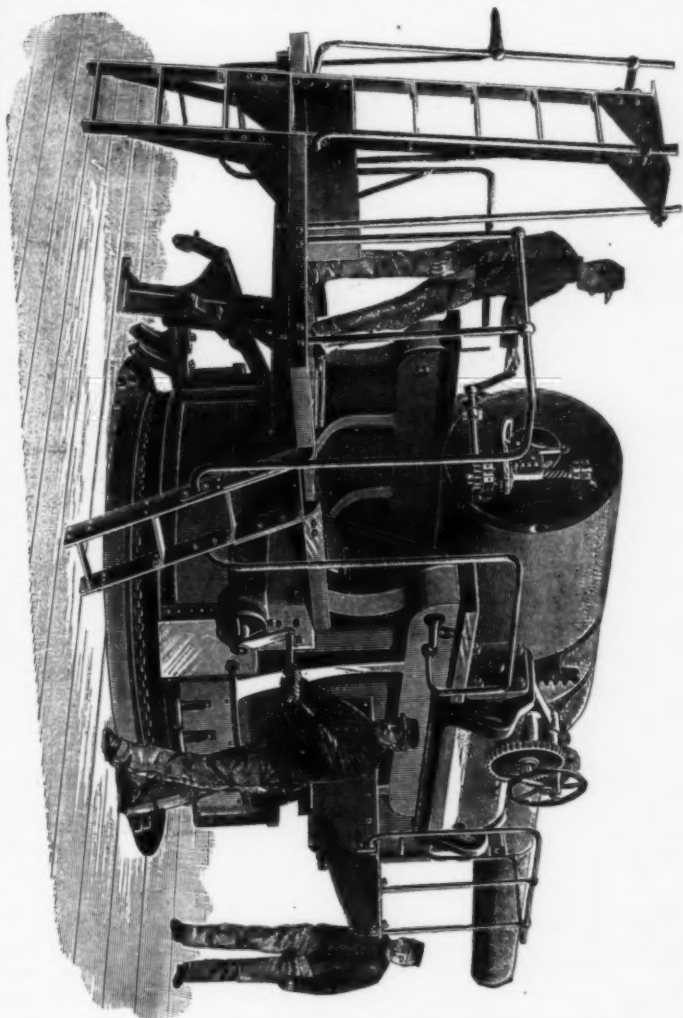
### MODERN FRENCH ARTILLERY.

#### COAST GUN CARRIAGES WITH HYDRAULIC BRAKES.

THE carriages especially intended for coast-defense guns on the Canet system and manufactured by the Forges et Chantiers Company, at Havre, are built from designs prepared at the request of, and approved by the French Minister of War, to replace the mountings for heavy guns proposed by Colonel De Bange, and which did not fulfill the conditions laid down by the French Ordnance Committee. The carriages are of two classes, those of cast iron, which are much cheaper and heavier, and those of steel, which are more costly but considerably lighter, and are therefore transported with greater facility. These carriages consist of three distinct parts; the carriage properly so-called, to which the gun is connected by its trunnions, and which carries the hydraulic brake cylinders, as well as the mechanism for training the gun for elevation; this part of the mounting is free to move to and fro upon the slides of the underframe. The bottom of the underframe has approximately a spherical form; the base is cylindrical and rests upon a roller ring; the two slides which are cast in one piece, with the vertical sides above the dome, are recessed to receive a series of rollers upon which the carriage moves to and fro, and they are tied together by strong cross-bracing. Both in the front and in the rear of the underframe, suitable transverse plates are introduced to give the mounting ample stability. The baseplate carries the central pivot around which the underframe revolves, as well as the path for the rollers that support it. The hydraulic brakes are constructed on the Canet system with the central counter-rod in each cylinder, so that during recoil the variations of the energy imparted to the gun after it has been fired, are allowed for. By this arrangement the brake exerts a constant resisting force during the whole period of recoil, and thus reduces the strain thrown upon the mounting. As soon as the recoil is complete the gun returns to firing position by its own gravity, running down the slides of the underframe on the rollers upon the carriage; a special arrangement of the brake mechanism permits the latter to operate during the return of the gun to firing position as well as during recoil; by this means the gun can be traversed forward upon its slides as slowly as may be desired, or as rapidly as is consistent with the avoidance of shock to the mounting. Training for elevation is effected by means of toothed gearing and a sector attached to the gun; but on account of the heavy weights to be dealt with, a special apparatus is provided with eccentric rollers in place of endless screws; by

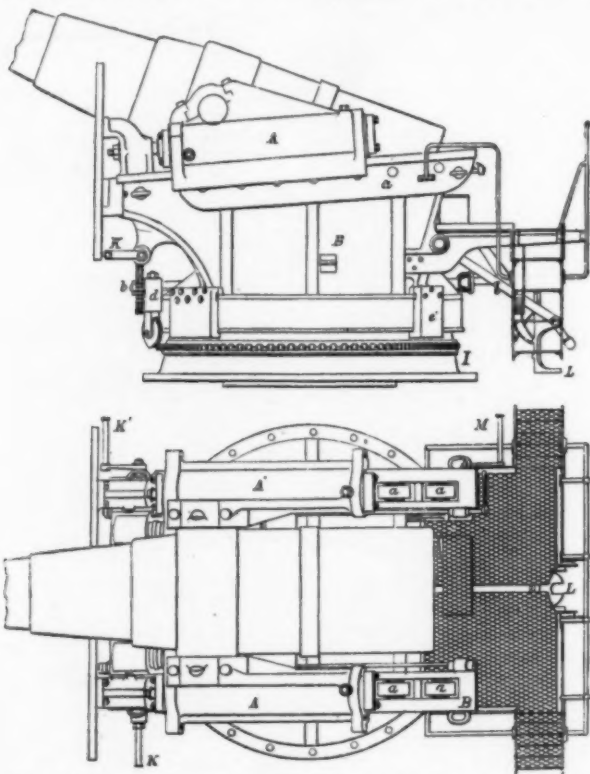


this device the effort required for raising the gun is considerably reduced, and the rapidity of handling is increased. The controlling handwheel is



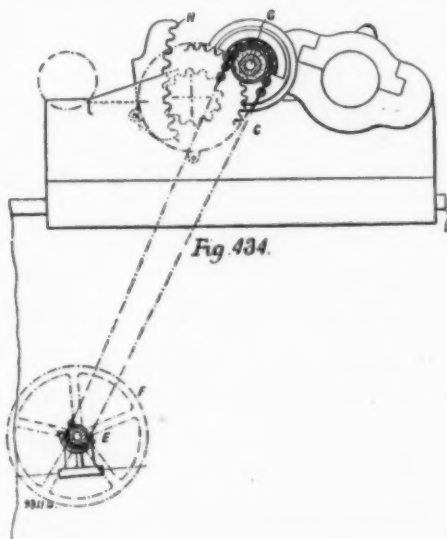
mounted on the left-hand brake cylinder; this arrangement avoids the necessity of using long transmitting rods, which are always liable to seize or to become bent or otherwise injured during action. The training in direction is performed by means of an endless chain passing round the

baseplate and returning upon a drum mounted upon the under-carriage and worked by two hand cranks at right angles to the slides. The slack in this chain, which may occur either from service or from other causes, can be taken up by means of a screw-tightening device. Simple and elementary as this arrangement is, it nevertheless has proved more efficient and reliable than other devices which are more complicated. Repairs are much more easily effected with this chain arrangement than with a toothed ring



driven by a pinion, especially when this ring is cast in one piece with the underframe, which renders repairs in place almost impossible. A toothed ring is, moreover, almost certain to rust up, or at all events to become choked with sand and dirt during action, which causes considerable trouble and hardness in working for lateral training. The operation of loading is effected by means of a tray hung to an arm supported by a horizontal shaft perpendicular to the slides, and by a cam around which a chain is passed acting upon a spring device. In order to make the work upon the handle operating this mechanism uniform, the apparatus is arranged in such a way

that the springs are compressed when the tray is lowered empty, while when it is raised loaded with the projectile and cartridge, the same springs give out the energy that was stored up in them, and so reduce the work to the man handling the projectiles. The latter are brought to the gun in a barrow of a special form from which they can be delivered direct upon the tray or holder without the men serving the gun having the trouble to handle them. The ring of rollers, which is placed between the baseplate and the underframe, permit the heaviest mountings of this type to be handled with great facility, the rolling movement being, of course, easier than a sliding one, while this arrangement distributes the strains produced by firing the gun, much more uniformly over the baseplate. The rollers are held in their proper positions and at fixed distances by the two rings in



which they are mounted, and a rib raised around the edge of the baseplate confines them always upon their proper path, so that the underframe always rests upon them with an equally distributed weight; the rollers are covered in with a guard that can be easily removed for the purpose of inspection and cleaning. Moreover, the rollers themselves can be taken out and examined one by one; a division is formed at one part of the circular baseplate, leaving a gap, which is filled up by a removable packing piece, the upper face of which forms a continuation of the baseplate. When it is desired to inspect the rollers, this packing piece is taken out, and the carriage is moved round until a roller passes over the gap into which it falls, and from which it can be easily removed for examination or exchange.

The man training the gun, as well as the other numbers, occupy the platform on the frame at the rear of the gun; in some cases where consid-

erable depression is required, the training number mounts to the small platform approached by a ladder at the back of the main platform.

The advantages claimed for this type of carriage by the Forges et Chantiers are as follows: 1. The adoption of a heavy baseplate in a single piece upon which the whole weight of the gun and mounting are supported; by means of this self-contained arrangement the gun can be always operated easily, even if the foundation on which the base rests should settle. 2. An underframe formed of two parallel sides in one piece with the spherical casting, resting upon the roller ring, over which all weights and pressures are uniformly distributed. 3. The use of a ring of rollers, which reduces the labor of rotating the carriage and distributes the weights uniformly over the baseplate. 4. The use of an endless chain for training the gun horizontally: this very simple device is easily repaired, and, taken in connection with the roller ring, forms a means of rapid and very useful manœuvring. 5. The carriage on which the gun rests is very low, and the brake cylinders mounted upon it are so arranged that the effort of recoil exerts a minimum strain tending to upset the gun. It is stated that the arm of the lever of this reversing couple, which is measured by the distance from the axis of the brake cylinders to that of the trunnions, is smaller than in any other similar type of gun carriage. 6. The use of a brake mechanism with a central counter-rod limiting the amount of recoil, and so arranged that during the period of recoil, as well as when the gun is brought back into firing position, a constant resistance is offered. 7. The arrangement of loading, by which the work stored up in springs during one part of the operation is utilized to assist subsequently in lifting the projectile and carriages. 8. The facility which the design offers for inspection, repair, or renewal of different parts, and the manner in which the most important details of the mechanism are protected.

The French War Department is so satisfied with this type of carriage that it has about 100 of them in service, of which more than 70 are for coast guns of 27 centimetres (10.63 in.). Before committing itself so far to this type of mounting, the French Government subjected a trial carriage to very exhaustive experiments; these having proved satisfactory, a second type was made and tested, and it was upon the result of these trials that large and permanent orders had been given. Before acceptance, every carriage has to be tested by fifty rounds at battering charges fired from a gun corresponding in calibre to the type of carriage, and elevated at extreme angles. Figs. 432 and 433 show clearly the principal details. Beneath the platform at the end is the projectile crane worked by the man at the left-hand side, who turns the crank that raises or lowers the crane. The latter operation compresses the springs as explained above. At the rear of the platform is an elevated station for the look-out to direct the number training the gun, and the breech mechanism, which will be described hereafter, is also clearly seen. On the left-hand brake cylinder is the elevating gear that works into the tooth arc bolted to the side of the gun. Fig. 434 shows a slight modification introduced into this gear, in which the power is applied to a handwheel mounted on the underframe, and is transmitted by a pitch chain to the gearing on the brake cylinder.

In Figs. 432 and 433, A A are the brake cylinders, *a a* the rollers on which the upper carriage takes its bearings; M is the handle for working the projectile crane, and K and K' are those for horizontal training; *e* and *e'* are the clips for holding down the underframe to the baseplate, and L is the bracket on which the projectile is placed. Fig. 432 also shows the mode of turning the gun and carriage on its central pivot.

A good example of this mode of mounting heavy guns for coast defense was shown in the Pavilion of the Minister of War last year at the Paris Exhibition; it could be manœuvred with one hand. Several of the same type have resisted 200 rounds at full charges without sustaining any injury. The Japanese Government had adopted this type as their standard for coast defense purposes, partly on account of the facilities it offers for relatively large angles of depression; the elevated coast line of Japan rendering this mode of firing necessary. All of these mountings are protected by steel shields, not shown in the illustrations.

FROM THE ROYAL ENGINEERS JOURNAL, DECEMBER 1ST, 1890.

*Rivista di Artiglieria e Genia, October, 1890.*

\* \* \* \* \*

*Constructions in Iron and Cement on the "Monier" System.*—A good deal has been heard of the "Monier" system, in which iron is used with concrete for floors, walls, tanks, and roofs. France, Austria, but especially Germany, have been experimenting with this system for years past, and several favorable notices have been published in various periodicals of those nations. This paper compiles all the results of trials, and comes to a favorable opinion of this system of construction.

The excellent plates that illustrate this paper show the many ways in which iron and concrete can with advantage be used in buildings of every description.

Briefly, the Monier system consists of having a wire netting of size suitable to dimensions of spans, and casting upon it the concrete floor or wall, or covering. What led Monier to using iron with concrete was his observation of the action of forces in breaking a beam transversely. He saw how the strains came on a beam supported at the ends and weighted at the centre, that the parts of this beam above a neutral line or axis were subject to compression, and the parts below this axis were subject to tension. He also knew that the tensile strength of concrete is one-twentieth of its resistance to compression, and hence the lower part of a concrete beam should be of inordinate dimensions to balance the strains above referred to. He then thought of inserting iron bars in the lower part of this beam, as they possessed a tensile strength more in proportion to the resistance to compression of concrete. Correct as this theory is, in practice it has worked itself out beyond the inventor's expectation, for the mixture of iron with concrete gives the latter an excess of strength to what it possesses when used by itself.

For several years experiments have been made, and improvements in the construction and admixture of the two materials, and it has been found that

what at first was thought to be a weak point, namely, the reduction of the strength and dimension of iron by oxidation or rust, does not occur with these structures; that iron bedded in concrete, after the mass had been exposed to all the vicissitudes of climate, came out of it as bright as when put in, and with no sign of rust, and of the same dimensions.

Trials have been made of Monier's floors under heat up to 1000 degrees centigrade, and their behavior has been perfect.

This system can be applied to deep tanks, to conduits for water of any dimension, to covering for roofs, and spans of bridges.

The drawings show at a glance the many ways iron and concrete may be used. A simple Monier floor consists of flat iron bars, of dimensions proportionate to spans, placed two inches to four inches apart, and parallel to each other. To keep these in their place iron wire or rods of  $\frac{1}{4}$  inch or  $\frac{1}{2}$  inch are placed across the bars at same intervals of two inches or four inches, and the points of crossing bound together with wire; the concrete floor is then made about one-fifth of its depth below, and the remainder above, this iron trellis work. The concrete is generally of one Portland cement to two or two and a half river ballast for tanks, and for other works one cement to three or four of ballast.

To give one of the trials quoted in this paper, an arch made on Monier's principle, weighted on haunch, broke with 6200 lbs., while an arch of concrete alone, of same dimensions and similarly loaded, broke with 2400 lbs.

As yet no trials on a large scale have been made with this system on works of fortification, but in barracks it has given very satisfactory results.

\* \* \* \* \*

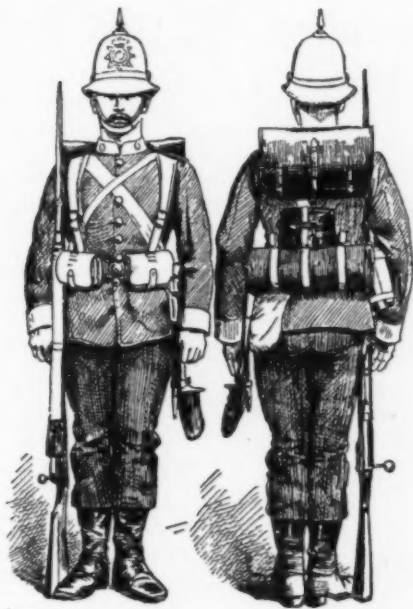
*Note by Major General Maquay on the Paper on Iron and Concrete.*—In our national defenses we do not give sufficient attention to the admixture of cement with iron or slag from smelting furnaces in making concrete for works of fortification. The sites where such works are in progress, and where iron works exist in the vicinity, the employment of slag as one of the ingredients for concrete would give astonishing results. It will be found on examination that where cement concrete comes in contact with iron, the concrete about the spot is amazingly hard. Perhaps some officer of the Corps who may have used the slag from smelting furnaces in making concrete would give his experience and the results obtained.

With reference to the paper on the Monier system of adding to the strength of structures by inserting an iron skeleton in the concrete, it may be found that this admixture of iron may increase the resisting power of concrete, subject to the impact of shot and the disruptive effect of shells with high explosives.

#### THE NEW ENGLISH PACK.

In 1888 the "Slade-Wallace" equipment was decided upon as the regulation kit, in the British army, and it is now in course of issue. A leading feature is the arrangement by which the valise can be detached without disturbing the remainder of the equipment. It sits behind the shoulder-blades, and the greatcoat is rolled and attached to the waist-belt. The

water-bottle is again suspended by a strap, and the "Wallace" intrenching spade hangs with the bayonet at the left hip. The sketch shows the latest equipment of the British infantry soldier. His uniform, destitute of any



vestige of ornament save the buttons and collar badges, is surmounted by a new pattern white helmet, which, whatever may be its merits from a sanitary point of view, must be regarded as surpassing in ugliness any head-dress hitherto worn in the service. Thus clothed, poor Tommy Atkins of the line must be exonerated from the implication, suggested by a high military authority in a recent magazine article, of being tempted to enlist by a love of "tawdry finery."—*Illustrated Military and Naval Magazine*.



## Comment and Criticism.

(The remarks under this head have, generally, been invited by the Publication Committee, which desires that, as far as practicable, these "Comments" should appear under authors' names.)

### I.

#### "Military and Naval Pensions of the United States."

General J. B. Fry, U. S. Army.

THE subject of pensions, ably treated by General Howard in this JOURNAL, in the number for January, 1890, is still before the public and probably will be for years to come. An address upon the subject was delivered to the Oregon Commandery of the Loyal Legion October, 1890, and adopted as the sentiments of that commandery. One of the prominent ideas of the address is to exalt men who volunteered early for the Civil War at the expense of those who entered the service later. Certainly there is merit in promptness, when the country calls for men to defend it, but in the nature of things men equally brave and patriotic cannot all start at the same time, nor can all of those accepted be assigned to duties which afford equal opportunities for brilliant deeds.

The address says: "In the early part of the war, especially at its very beginning, the patriots of the nation sprang to arms," and the address maintained in effect that relative patriotism was pretty well indicated by the date of enlistment. That this is erroneous and unjust need not be argued at length.

In the beginning the war was looked upon as a military picnic. Haste in joining was not due wholly to patriotism, nor was delay due wholly to lack of it. Some men like picnics, others do not. Furthermore, while men were offering as fast as they could be received, the Government refused to accept more, and April 3, 1862, closed its recruiting service. The patriots shut out are blameless for not being in, and for the appearance of tardiness forced upon them.

In war, as in a more tender matter, it is well to take men when they are in the humor. An earnest and devoted suitor offered himself to his capricious sweetheart, was rejected, and went his way. She soon regretted her folly and wrote him a sweet scented note, saying, "Is it permissible to change one's mind?" He replied, "Certainly it is, and I have changed mine." So it was with many of the patriots turned away.

The record of service does not prove high patriotism in all the early volunteers. The short and disastrous campaign of Bull Run first, was made by the earliest of them. Many after the battle *retreated* (?) to their homes. A light battery and an infantry regiment whose terms expired the day before the battle insisted upon discharge, and as General McDowell said in his official report, "marched to the rear to the sound of the enemy's cannon." A more striking instance of lack of patriotism is not to be found in the records of the Army before or after the draft.

The address says: "With the bounties and the draft came the bounty jumpers and the deserters, with the resultant straggler, shirk and coward." Desertion came long

before the draft. Among the hasty patriots it had by 1863, when the draft law was enacted, become an evil of such magnitude that it had much to do in rendering resort to the draft necessary. Between March, 1863, and the close of the war, the Provost Marshal General's Bureau arrested and returned to the Army over 76,500 deserters. How many of them were hasty and how many tardy patriots can never be known, but there were many of both.

Bounties began at \$100 in 1861, by virtue of the first law authorizing the President to call out volunteers for the Civil War.

So far as the *principle* of taking bounties goes the hasty and the tardy patriots stand alike, but it is true that bounties increased rapidly as the war progressed and the currency depreciated, and the serious evils of them were felt only towards the close of the contest. It is true also that there were deserters, stragglers, shirks and cowards in the first as well as in the last two years of the war. When the war closed, the Army by enlistments, draft and capture of deserters contained over a million of men.

Good fighting was done and great victories were won by our forces after the draft and big bounties; and the services of the million and more of men raised after the draft law was passed in 1863 should not be despised or underrated.

The address says farther: "The rewards must be given to those who do the work and suffer the most, and any rule which bestows the same or similar rewards upon those whose duty during the war required no exposure and few deprivations, as upon those who underwent every exposure and endured every privation is not only opposed to every principle of right and justice, but is degrading to the bounty bestowed upon merit." The discrimination suggested by the foregoing remarks is not practicable in pensions, and it would not be just if it could be made. No man or tribunal of men is wise, learned and fair enough to arrange a million or two of soldiers according to the exposure and privation they endured in a four years' war which ended a quarter of a century ago.

The injustice of such a proceeding for pension purposes is equally apparent. As soon as the men entered the military service of the United States it rested wholly with the Government to use them as it deemed best. If it sent one man to a Fort and another to the Field, and they performed the duty assigned to them with the same fidelity, justice requires the same pension for them and for their widows and orphans. Those who hold the base and those who move on the objective have the same right to pensions, but not the same chance for glory. The true basis for pensions is faithful service in the grade and place designated by the Government.

Other things being equal, the men left by General Scott to hold Vera Cruz and those he led to the City of Mexico are entitled to the same pension, and so it is with the men left by General McClellan to hold Washington and those he took to the Peninsula. Especially distinguished and valuable military services should receive proper Government recognition outside of the regular pension system.

The address says: "The country has the right to demand military service from every citizen. If patriots enough volunteer to supply the demand, they on their parts ask no more of the Government than a fulfillment of its contracts. A true patriot and soldier would scarce demand more." Of course the Government ought to carry out its contracts with everybody, including patriotic and mercenary soldiers. But manifestly many soldiers of the Civil War are seeking more than the fulfillment of the contract for invalid pensions, and the meaning of the address appears to be to depreciate or question their patriotism. That it seems to me is not right. There may be men who serve from unworthy motives, but *post-bellum* efforts for service pensions do not overthrow the general proposition that honorable war service is *prima facie* proof of patriotism in our hasty and tardy volunteers.

Military pensions are founded in the judgment and feelings of the people and are sustained by uniform practice since the formation of the Government. A pension certificate, like every other Government certificate of honorable war service, is a thing to be proud of. Neither the wealth, nor the patriotism, nor the pride of the individual can cancel or weaken the Government pension obligations. The granting of pensions for anything except disability incurred in line of duty has always met with opposition and always with the same result—failure of the opposition.

The regular course has been to pension first for disability and finally for service. Ought we to continue the practice and grant pensions in the foregoing order for the Civil War? Certainly we ought, but there is a time for all things. Service pensions for that war will not be in order for many years to come.

The cost of the Civil War, including pensions, is enormous. But if we look upon it as a sum fixed by Fate for freedom—for getting rid of the curse of human slavery—the price is not too high, and the bill ought to be paid, no matter how long it may take to do it.

It is the duty of Government to honor and reward those who in time of war risk their lives to defend and preserve it; but Government is created for the general welfare, and it would be wrong for it to bankrupt the whole community by trying to meet prematurely the obligations it is bound not by contract, but by honor and precedent to meet sooner or later.

## II.

### "Meritorious Discharged Soldiers."

J. E. Bloom, Esq., Late Lieutenant Fourth Artillery.

I HAVE read with deep interest the "Comments and Criticisms" upon the article entitled "Meritorious Discharged Soldiers," and without attempting at the present time to answer such of the adverse points as are therein contained,

I desire now to state that a recent personal examination of the practical workings of the "Corps of Commissionaires" in this city convinces me that the same system is adaptable to the United States; and I venture to predict that, if once practically and firmly introduced there, its success will far exceed that attained here. On the 9th of November, upon the invitation of Sir Edward Walter, the Founder of the Corps, Major J. C. Post, U. S. Engineers, our worthy military attaché, and myself attended the monthly inspection of the Corps of Commissionaires (the London Division), held in Westminster Hall, and on the ensuing day we inspected their barracks, etc. Colonel Wilkinson, the commandant, Captain Swinhoe, the adjutant, Colonel McN. Rind, the assistant adjutant, and other officers were very kind in showing us the system of books, etc., used by them, and which they have developed in thirty years' practical work into a very simple system, and which, as Sir Edward suggests, will be readily understood and grasped by any one accepting his offer announced in your November issue.

At the period of said inspection the morning report showed: Total number of members, 1834; the London Division comprising 1140. Of the latter number 1027 were in permanent employment, 113 only doing messenger or Commissionaires' work.

Since the corps was started in 1859, less than one hundred pounds sterling has been lost or misappropriated by the few "black sheep."

At the said review I saw a most soldierly and admirable body of men—veterans of all the British wars and skirmishes from the Crimea to the present date. Altogether it was an interesting spectacle. Imagine yourselves inspecting a number of our able-bodied veterans, not only of the War of 1860-1865, but also of all our numerous Indian campaigns—all arrayed in a uniform the insignia of a civil organization, constituting

the means and instrument of placing the veteran in an honorable and lucrative calling in civil life—and I ask, would you not feel that you had assisted in a worthy cause, in aiding in the establishment and maintenance of such a body?

Wherever one goes in London proper he encounters the Commissionaire. At the City Law Library a Commissionaire is the Secretary and Librarian in charge. At the principal banks, trust companies and largest mercantile establishments you will find him in charge of the entrance. At the theatres it is he who receives your ticket, etc. Many of them are yet under forty years of age, though the gray hair predominates.

Not every honorably discharged soldier is admitted to the corps; he must be able-bodied and healthy. To those desiring a detailed knowledge of this corps I suggest that they transmit one and a half shillings (35 cents) by post-office money order to the Paymaster-Sergeant, Corps of Commissionaires, 419 Strand, London, W. C., for a copy of the rules, a book of 125 pages; every Post Adjutant should send for one—to be read by both officers and enlisted men. At a future time I will, if it be desired, send a summary of said book, whose table of contents is as follows, and which will suggest the scope of the work:

#### TABLE OF THE CONTENTS OF THE BOOK OF RULES.

1. Management of the corps.
2. Qualifications and conditions of entrance.
3. Form of engagement and guarantee—payments by members to the funds of the corps.
4. General regulations for duty.
5. Divine worship.
6. Parades.
7. Duties on public posts in the metropolis.
8. Respecting Commissionaires in private, temporary or special employment.
9. Form of agreement with employers.
10. Barrack regulations.
11. Head-quarter and temporary employment divisions.
12. Leave of absence.
13. Complaints, etc., on the part of the men.
14. Boards of inquiry and disputes between Commissionaires.
15. Regulations concerning promotions, etc.
16. Discipline, fines and punishments.
17. Education.
18. Clothing and equipment.
19. Accounts of the Commissionaires.
20. Band.
21. Medical officer.
22. Medical attendance fund for the wives and children of members of the corps.
23. "Annual Circular" of the corps.
24. Mess and co-operative store.
25. Savings' Bank.
26. Insurance fund.
27. Retiring and convalescent hospital funds.
28. Sick and burial fund.
29. Lost property.
30. Ticket books of men on public posts in the metropolis.
31. Supplies for use of corps.
32. Accounts of the corps—taxes and general fund.

33. Non-commissioned officers of the staff.
34. Relating to the officers of the staff.
35. Auditors of the corps.
36. Delivery of circulars.
37. Children of Commissionaires.
38. Out-quarter divisions.
39. Lady adjutant.
40. Resignation and dismissal.

The following may prove of interest at this time :

#### THE COMMISSIONAIRES' FORM OF ENGAGEMENT.

I, \_\_\_\_\_ late \_\_\_\_\_

agree to engage myself as a Commissionaire in the corps founded, in 1859, by Captain Edward Walter, and handed over by him, in 1865, to the Governors of the "Endowment Fund," and to conform strictly to all the rules and regulations made by the commanding officer, from time to time, for the maintenance of discipline and order in the said corps.

2. I fully understand that I have no claim on any governor, officer, or member of the corps, for payment of any kind, and that I am dependent solely on my own exertions for remuneration ; and that if offered any charitable aid from any source, I will not take it without written leave of the commanding officer.

3. I agree to pay in such proportion, and at such periods as may be from time to time ordered, any sum that may be chargeable against me for clothing, equipment, lodging, messing, general fund, sick fund, insurance fund, fines, or any other claim connected with the Corps of Commissionaires.

4. I also agree—in case of my resignation or dismissal from the corps—to forfeit all sums I have paid in on these accounts, and to return at once all the clothing and equipments with which I have been at any time furnished.

5. In the case of a barrack or lodging-house being built or hired for the use of the Corps of Commissionaires, I undertake to live in it and pay such rents as may be fixed.

6. I further understand and agree that if at any time during the first three years of my service in the corps, I become incapacitated from doing my duty as a Commissionaire in consequence of any disqualification arising from my health, which the medical officer may certify to be of a chronic nature, I shall be forthwith discharged, my ledger account being credited with the following sums, viz.:

(a) The amount of entrance fees to the Sick and Convalescent Hospital funds.

(b) All monthly payments to the same, less any weekly sums received from it, in consequence of sickness.

(c) Ten shillings yearly for every complete twelve months' service in the corps, to be paid out of the insurance fund.

Signature of Commissionaire \_\_\_\_\_

Witness \_\_\_\_\_

Date \_\_\_\_\_

\* As to the advisability of attempting the establishment of a similar corps in the United States, General Abbot's remark is conclusive to my mind when he says : " If it were practicable to make service in the Army a stepping stone to desirable civil em-

ployment after discharge, I think an inducement to good conduct would be offered, more powerful than any which has yet been tried." It is practicable in the United States to a limited degree. The London corps has demonstrated that the men receive, on an average, 20 per cent. better pay than they would receive if not members thereof—that is in the same walk of life.

Through such a corps such a stepping stone would be obtained for many a worthy man, whose life in the Army has deprived him of many opportunities, and worse yet, of many habits and peculiarities which enable his civilian brother to "gain the best of him." True, there are exceptions, but my limited experience in the service leads me to believe there are very few. The tendency of the ordinary discharged soldier is either to re-enlist or to struggle for existence in a hopeless, aimless way. He is accustomed to lean upon others; out of the service he is deprived of this support, which would be given to him anew by such a corps organization.

The reader should dismiss from his mind the impression that "Corps of Commissionaires" implies a mere body of messengers. Far from it; its main mission is to obtain permanent employment for its members—and when they are deprived of such permanent work to afford temporary employment in the shape of trustworthy messenger or courier's work, or the addressing and mailing of circulars, or other jobs affording a day's work here and there.

Its mission further is to inculcate habits of economy, by obliging its members to deposit a certain amount weekly in a building association or savings' bank; also to contribute towards an insurance fund, a sick fund and a burial fund. All such deposits are made liable for the misconduct of the depositing member, giving additional security to the employer. The corps now has a savings' fund of nearly half a million of dollars.

General Abbot's suggestion of having a roster of discharged soldiers and giving them the preference for Governmental work, is a good one and should be adopted in a quiet way, without formal announcement; for the reason that it would incite the active opposition of the politicians and the labor bodies, if adopted as a Government policy or the policy of Government officers, civil or military. Such a roster contemplates giving a preference by the Government or its officials; whereas the corps idea we are advocating does not appeal to such employers, but more especially to the world at large, who are unaffected by political clamor, and who would be apt to appreciate the difference between employing a man with a known record, duly vouched for by an organized body, and employing a mere stranger through a newspaper advertisement. In other words, a member of the corps, as far as the employer's will is concerned, is merely on an equality with the public, and hence the labor bodies could not complain.

Doubtless, the discussion of this question will bring forth many conflicting views. It appears to me the most sensible method of considering its practicability is to test it on a small scale, and on the following general lines.

In the first instance, confine the membership to honorably discharged men of the Regular Army and Navy. Let the subject be well ventilated at each Army Post and in each company. Call a general meeting in New York City of such officers or ex-officers as may see fit to attend, for the purpose of constituting a Committee on Organization—the same to be a General Executive Committee with full powers to act until the further completion of the organization. Add several civilians to the Committee. Issue a call for subscriptions and for views. Let each regiment be asked to contribute \$10 toward a fund for preliminary expenses, to be utilized principally in defraying the cash outlays requisite to send a retired Army officer and a worthy non-commissioned officer to London for one month to study the system in vogue here, and to accept the offer of Captain Walter, published in your last issue.

Let the various retired officers who would be willing to act as officers of the corps send their names, confidentially, to said committee, who shall select one or more therefrom. Let honorably discharged men who wish to join such a corps send their names to the committee. After the aforesaid officer has returned from London, let the said corps be formally organized for work in New York City, with not over 100 members selected from all the aforesaid applicants. After said 100 men have been fairly "digested" let the corps be increased as its Governing Board may see fit. The colonel of each regiment shall be a member of said board, as shall also a certain number of naval officers.

As one of your correspondents suggests, the coming Exposition at Chicago affords a fine field for work for such an organization, and which could be conducted as a Division of the corps having its main headquarters in New York. A neat uniform would be adopted, to be worn continuously when not conflicting with the wishes of the employer.

In the United States I do not think that this work should be undertaken by any one philanthropist. It should primarily have the moral support of the existing Army and Navy establishments; that of their kith and kin and acquaintances will speedily follow and success will thereby be attained.

LONDON, Nov. 27, 1890.

### III.

#### "The Gyroscope and 'Drift.'"

Lieutenant James S. Pettit, First Infantry, U. S. A.

THE article headed as above may be interesting in its uniqueness, but can scarcely be commended for its accuracy or devotion to the fundamental laws of mechanics as taught in modern text-books. It purports to give "an explanation of the cause of the sustaining force and other phenomena of the gyroscope, without any attempt at a mathematical analysis of the problem."

The author deserves credit for his temerity in attacking a problem which such men as Poisson, Barnard, Young and others have declared to be susceptible of no satisfactory popular explanation, apart from a mathematical analysis. General Barnard, in his admirable little work on the gyroscope, says: "To those who seek a popular explanation and do not find satisfactory that which I strive to give, independently of the analysis, I can only say that all attempts at a purely popular explanation I have yet seen have been failures."

Let us examine the article a little in detail.

The author says: "The cause of these phenomena, it is believed, has never been satisfactorily explained." If he will read Barnard on "The Gyroscope," or study carefully Michie's "Mechanics" from article 117 to article 120, he will find a full and satisfactory analytical discussion of these phenomena.

At the bottom of page 55 (JOURNAL M. S. I., No. 48), we find "Centrifugal force will thus be developed in this point in the opposite direction, that is, horizontally and to the right," that is, away from the centre of rotation. Here is the first grave error. Centrifugal force, as accepted in modern works on dynamics, acts towards the centre of curvature, and never by any possibility in the directly opposite direction; neither can it have any component outside of the tangent, as the author assumes.

On page 56 he says: "Thus a 'couple' will be formed at O, with OO' as its lever arm." If he will consult Bartlett, Michie, Rankine, Bowser, Graham (English), he will find that a couple "is a pair of equal and opposite parallel forces not immediately opposed." He means "moment."



A little further down he says: "These two couples conspire, and are sufficient to account for the observed horizontal motion taken up by the gyroscope in experiments." If he will take his gyroscope and with two fingers apply at the points P and P', as indicated in his figure, two equal and opposite parallel forces, as also indicated in his figure, he will find that the gyroscope will not move a hair's breadth in a horizontal direction.

The effect of a force can only be transmitted from the revolving disc or wheel, through its axis; and since this axis prolonged intersects the vertical axis at O, any force transmitted along it can have no moment with respect to this axis, and hence cannot possibly produce any rotation about it. These statements are too simple to require further explanation. This being the chief point in the discussion, and being false in principle, there is but little use in discussing it farther; but we will note a few more errors.

He says: "The line described by the outer end 'A' of the gyroscope will not be a horizontal circle, but an epicycloid," which is not true, as the curve described is a curve of double curvature, whose projection on a horizontal plane resembles an epicycloid. The curve itself is shown by its differential equation to be a modified cycloid. (See Barnard, p. 548.)

In this connection we find on page 58: "If the rotation of the wheel remain constant, the epicycloid will be in a horizontal position and the horizontal motion will be uniform." This is again untrue. The horizontal motion can only be uniform when the velocity of the rotating disc is infinite, or in the absence of gravity. If the rotation of the wheel remains constant, the horizontal angular velocity of the *centre of the circle*, which would generate the cycloid described by the outer end of the gyroscope, will be uniform, but not the horizontal angular velocity of any part of the gyroscope; for at the cusp the velocity is all in a vertical direction, and at the lowest point of the cycloid it is all in a horizontal direction, and it is perfectly evident to the naked eye that its horizontal motion is anything but uniform.

On the same page he says: "Thus the phenomena of the gyroscope are referred to centrifugal force or inertia of motion." As the author's ideas on centrifugal force are wrong, and as centrifugal force is, to say the least, in doubtful guise when forced to take the alias of "inertia of motion," it were better to have left this unsaid.

It is useless to criticise farther, as these errors are in a measure carried through the entire subject.

General Barnard says: "Whatever mystification there may be in analysis—however it may hide its results under symbols unintelligible save to the initiated—it is most certain that the greater portion of the physical phenomena of the universe are utterly beyond the grasp of the human mind without its aid." The gyroscope, and the principles of the gyroscope as applied to precession and nutation, belong to these phenomena.

I was at first struck by the apparent simplicity of the solution as tendered by the author, and wondered if all the time and energies of the many able men who have sought to solve this problem satisfactorily had been wasted by overlooking so simple a solution.

There is one other point that occurs to me in glancing over the article again, viz.: At the bottom of page 56 he says: "The gyroscope, in passing horizontally from its original position, OA (Fig. 2), to its new position, OA' (Fig. 3), revolves about the vertical axis, OX." From the figures and this statement, I take it that he starts the gyroscope with the axis horizontal as in Fig. 2, and that it *rises* to the position as indicated in Fig. 3. If that is the idea, it is erroneous, as the gyroscope can never, under any circumstances, *rise above its initial position*. If the reverse of this were

true we could create energy, and the last stumbling-block in the way of perpetual motion would be removed.

There is no difficulty in understanding the *cause* of the motions of the gyroscope, to one who is acquainted with the laws of rotation under the action of incessant forces. They rest upon the broad principle that, while rotation about the axis has not the least power to impair the work of gravity through a given height in generating velocity about a horizontal axis, it does have power to *change the direction* of that velocity.

Lieutenant W. B. Gordon, Ordnance Department, U. S. A.

The fact that the motion of an oblong projectile is gyrotory does not make its motion analogous to that of the gyroscope. The two cases differ essentially, one being a problem of free motion, the other constrained motion about a fixed point. The supposed analogy does not exist, and in each case a rigid analytical discussion is necessary to determine the circumstances of motion. It is not believed possible to arrive at the proper conclusions in any other way.

In the case of the gyroscope we have the advantage of being able to follow the motion by the eye, and a satisfactory popular explanation of some of the peculiar phenomena of the instrument would undoubtedly be of interest, particularly to those who cannot follow the analytical discussion. But on the basis of such an explanation alone, it would be very unsafe to make any predictions with respect to motions which we cannot observe, and which are produced by a different set of conditions.

The problem which illustrates the motion of the service projectile is familiarly known as "The Rolling Cone," and the facts in the case do not accord with the conclusions drawn in the last part of the paper under notice. Referring to the "gyrotory motion," the writer says: "Since, in the service oblong projectile the resultant air resistance passes above the centre of gravity, the first impulse is to raise the point. As shown in the first paper, the point will not rise, but will pass to the right."

Taking the conditions as given, it is not the point of the projectile which moves to the right under the first impulse. The instantaneous axis moves to the right, and the invariable axis still farther to the right (both supposed initially coincident with the axis of the projectile), while the point of the projectile rises and would, under the first impulse alone (omitting the motion of translation), describe a circumference about a point on the invariable axis. But each succeeding impulse of the air modifies the motion, so that the angles between the axes are continually changing. To determine their positions at any instant, the moment of the resistance of the air must be given, and the problem is one of very great intricacy. The general character of the motion is easily understood, but the actual amount of the drift for a given case must be determined by experiment.

Though not distinctly stated, the inference from the discussion is that the writer makes the error of assuming that the axis of the projectile follows and coincides with the instantaneous axis. Without stopping to consider that his discussion warrants no conclusion—or at least only a partial conclusion—one might be led into this error. But the proper conclusions cannot be drawn without the analytical work; and having the analysis, it is not exactly a matter of drawing separate conclusions, but of obtaining a complete image of the motion as a whole. At the same time this image should include the *cause*, in order to prevent the mind from conceiving impossible cases. In the literature of this subject such a false image is almost invariably found. It is the "*bouleversement*" of the body when the ellipsoid is prolate and the invariable axis lies in the plane of the equator.

Such a condition of motion is impossible without constraint. The *cause* which might

seems to produce such a "*bouleversement*" would immediately throw the instantaneous and invariable axes out of the plane of the equator and establish entirely different conditions of motion. In fact, for positions of the invariable axis the plane of the equator is the limit at which the *bouleversement* ceases.

I have never seen this error corrected, except by inference in "*Michie's Mechanics*," where it is not propagated.

As to that part of the paper which relates to the phenomena of the gyroscope, the errors almost obscure the fact that the "cause" is suggested. It is certainly not explained.

Properly speaking, the cause is given by the conditions of the problem, and it is the method by which the cause acts which requires explanation. This method may be explained either by the composition of angular velocities, or by a study of the force exerted toward the fixed point to deflect the body into its curved path; but the only complete explanation is the analytical discussion.

It is to be hoped that some one will suggest the formation of a society for the extermination of "centrifugal force" and "inertia." "Centrifugal force" is a contradiction of terms, and "inertia" is of no use for any purpose whatever.

#### IV.

### "A Proposed Change in Artillery School Methods."

Lieutenant G. M. Whistler, Fifth Artillery, U. S. A.

LIEUTENANT HUNTER'S paper upon this subject and the accompanying discussion by various officers of the corps, in the last copy of the JOURNAL, must necessarily be of great interest to the officers of artillery.

I myself am hardly competent to judge of the methods of the school in consequence of the time that has elapsed since my graduation from that institution; my views upon the subject are, therefore, primarily based upon the results of the school as shown by the interest taken in their profession by its graduates, and the great advance made in the line of our branch of the military profession since its organization.

My own experience with the graduates of the school, together with the character of the publications that have either emanated directly from that institution or from its graduates, has engendered a considerable pride in the school and a conviction that its methods were producing good results.

It must, however, be freely admitted that objections to the system are often heard from those whose capacity to judge of the needs of the service cannot be questioned. If this feeling were manifest only among the actual student officers it might be understood, but when we find that among its graduates, many of whom have taken a high stand in their profession, and whose names are beginning to be classed among the "authorities," this feeling exists, we are forced to recognize the fact that it is not merely the proverbial "soldier growl."

That a system intended for all—the young graduate, the first lieutenant who does not care for study, the studious officer and the Artillery expert, all of whom are required to go through the same course—must produce a feeling of dissatisfaction, is beyond question. The student who desires an advanced course, the expert who desires to be allowed to follow a somewhat original line of investigation, is naturally disgusted by being obliged to keep back with those for whom the course is more particularly intended. At the same time it would be clearly unwise to regulate the course to suit this class, who really do not need it, and who are fully competent to go on without the aid of instruction.

So far as I am able to observe, the objections are twofold : That which comes from the advanced men, who are hampered by the recitation system, and who feel that a greater personal freedom in the line of study, accompanied by lectures from experts, would best suit their needs. That which proceeds from those who do not care for study at all and hate the work they are required to perform, who naturally do not like being marked and graded with men whose attainments are far in advance of their own, and who believe that the lecture system would be much the easier plan for them.

Do not understand me to cast any reflection upon this latter class. Some of our ablest practical soldiers are not students ; quick to grasp practical ideas and to utilize them, they are utterly unable to formulate their ideas into the language of a recitation. Never having been forced to study, they have never learned how ; or having been free from it for years they do not like returning to the "grind" that they were obliged to maintain for four years at the Academy.

Omitting from consideration that class of really worthless men, of whom fortunately there are very few in the service, and who it is to be hoped will be eliminated by the new promotion bill, there are these two classes for whom the school is intended. The question for consideration is how should the school be modelled so as to give to each class the advantages that will produce the greatest amount of good to the corps of Artillery ?

Lieutenant Hunter's views may be classed under the following heads :

1. A school of practice for young officers.
2. An advanced school.
3. Temporary lectures, instead of permanent instruction.
4. The lecture system, instead of the recitation.
5. A subdivision of authority and administration.

I have omitted the recruit school as not applicable to the point at issue.

Primarily, I do not think the subdivision simply into a practical school for young officers and an advanced school for the older officers will solve the problem. Whether or not the school of practice will be productive of more good than service with a regiment, I think is questionable. Lieutenant Hunter's plan still leaves the same mixture of the two classes of student officers in the advanced course, and proposes a scheme which will undoubtedly be a godsend to the first class, of which he himself is a member, but would be productive of evil, so far as the second class is concerned; nor would it prevent dissatisfaction.

A large majority of each class would consist of good officers anxious to learn their profession, but who have never been students, to whom a high grade lecture would be like so much Sanskrit. If the lectures were suited to the needs of the majority, the students of the higher artillery technique would "kick," and, in any event, the majority would be rushed through a two year course in a very superficial manner and gain very little advantage thereby.

A system of lectures by experts, temporarily assigned for such duty, and taken from the Army at large, would be admirably adapted to the needs of the first class of students and probably the best system of instruction for them. To the enthusiastic student each lecture would become a new point of departure that would lead to new lines of thought and new investigations.

Such a system would, however, be useless to the second class, who in many cases would not be far enough advanced in their studies to comprehend the lecture, and in all cases would be too busy with ordinary routine of their studies to branch off into new investigations.

For the second class of students a well devised system of recitations, accompanied by actual demonstration and lectures, is best suited for the purpose. For such a sys-

tem a corps of permanent instructors such as are now at the school, who have, after years of experience, gradually built up a course suited to the needs of the institution, is what is required; their places cannot possibly be filled by temporary lectures no matter how able.

There are two sides to the question of "Lecture *versus* Recitation." For the advanced and enthusiastic student, the lecture is undoubtedly the better plan. For the ordinary student, the recitation system is, beyond question, better suited to stimulate work.

The idea of an absolute division of the administration into two distinct branches, the Post and Academic, is, to my mind, impracticable and inconsistent with the best interests of discipline. I am, however, of the opinion that the instructors should not be battery commanders.

I would have a battery from each regiment present at the school, and the battery commanders should be the instructors of practical artillery for the officers of their own regiment. The heads of the various theoretical branches of instruction should belong to the academic staff and have no connection whatever with command of the troops.

Permit me, in conclusion, to suggest the following plan of organization.

1st. The *ordinary course of instruction*, both practical and theoretical, through which every officer of artillery must pass, and which shall form the basis of examinations for promotion. This course to be carried on as at present in vogue at the school.

2d. An *advanced course* which shall be entirely voluntary. Any graduate of the *ordinary course* at the Artillery School, shall be permitted, when his services can be spared from his regiment, to take this course, which shall consist of a lecture course upon the higher technique of the profession; and in this course the services of the best minds of the country, whether in or out of the Army, shall be obtained as lecturers. Each student being required to submit a given number of papers upon subjects connected with the profession as graduating theses, the best of which shall be selected for publication to the Army.

3d. *Course of special study*. Any advanced graduate of the Artillery School, desiring to engage in special investigation and study shall, with his application to the General of the Army, present a paper setting forth the character of the proposed course of study and investigation and the work already done. If, in the opinion of the General of the Army, or a board to whom he may submit the question, the character of study and original investigation is of sufficient value to the profession; the officer shall be ordered to the Artillery School for special study. He shall have free use of the library and be given every opportunity, of course under proper direction, to pursue the course of study and investigation in which he is engaged.

In addition to the above, all experiments in ballistics or apparatus for use in the service, should be undertaken at the school; in fact, it should be made the centre of Artillery thought and work. Congress should be asked for an appropriation for the publication of a technical journal and officers skilled in that character of work should be detailed to edit the same, the Journal to be published at the school.

While all the friends of the school desire to see it placed upon a proper footing, improvement in its methods will not be obtained by attacking the system or the officers who have conscientiously striven to bring it up to its present standard.

What has been done has been well done, and the school has been undoubtedly progressive. I desire not to be considered as a critic of the school's methods, but simply to offer a few suggestions looking toward a more comprehensive system.

## V.

## "The Place of the Medical Department in the Army."

Bvt. Lt. Col. Alfred A. Woodhull, Major Med. Dep't.

**I**N closing this discussion, it is gratifying to have an antagonist at once so courteous and intelligent as Captain Chester to represent the conservative side, and it is encouraging to observe the weakness of the negative. For it is fair to suppose that no heavier ordnance is available than that which this cultivated officer has used in his two attacks.

The original proposition was that the medical officer of to-day "is an essential part of an efficient army, and as a military factor in it is entitled to precisely the same consideration and respect on account of his position as is accorded to any other functionary of similar rank" (p. 544). Growing out of this was the "contention that in military life the medical officer should be known by his military designation throughout its various grades" (p. 553). This is not the main proposition, it is an outcome of it: but having a manifest and daily application, it has attracted more attention. Many have mistaken this incident for the essence, and have looked upon the paper as written to maintain that thesis. It is true that if the main proposition is established the other follows, but it is not worth while to invert their importance. Saying "It is my contention, etc.," did not mean to imply that it was the main contention; but although secondary, I regard it as important and believe it is defensible.

Beginning at this point Captain Chester discusses (pp. 823-24) hardly the direct question but an ingenious combination that he sets forth, whose fallacy he is entirely too acute not to recognize, however it may mislead those not closely following the original. He confuses the objection that surgeon and assistant surgeon are misnomers, with his own assumption that captain and lieutenant are inherent in the line alone. "Borrow from the line" is the exact phrase. His original definition that "lieutenant is and always has been the assistant of a captain" is effectually disposed of by Captain Dietz (p. 1040), whose admirable rejoinder really protects much of what is now in dispute; and Captain Chester himself upon reflection adopts Worcester's, "next in rank below a captain" (p. 1039). This is unobjectionable but it does not help the negative. To limit it to the alternative, "the second officer of a company" would exclude all subalterns of Ordnance and of the Engineers, except as the latter might be galvanized into temporary life by the becoming part of the battalion. He adds, merely to be destroyed, the self-evident proposition that "command cannot confer a title." And then he lays down the dictum that title is necessarily descriptive and is derived from the terms of the commission. Nevertheless he speaks of the accomplished Chief of Ordnance as General (p. 825). But he is not a general of Ordnance, nor by brevet; he is the Chief with that rank. Finding it necessary, however, to defend "the custom of addressing certain staff officers" by their military titles, Captain Chester places it upon the ground that they are assignable to command (p. 1039). But their assignment to command does not change their commissions, and he has already insisted that the title in the commission is the only title an officer can claim (p. 824). To take a concrete example, the officer who commands the Military Prison is an assistant quartermaster, but it is not conceivable that the most strenuous stickler for military propriety would hesitate to address him as Captain, although his commission simply uses "captain" to define his rank. The duty entrusted to him has not altered the wording of the document. Viewing it abstractly, does it seem reasonable that an officer commissioned as quartermaster with the rank of major may properly be addressed as major, because at some time he may have his rank extended to command officers of the line, while



another officer who is a surgeon with the rank of major may not be so addressed, merely because he may not (it is said) exercise command to the same degree? In this connection observe who are "invested with the prerogatives of commanding officers" by A. R. 1611, 1612.

That the qualities of rank and command are distinct, appears from the practice of courts-martial to suspend from both : and that the degree of command is variable appears, among other examples, from the limitation upon that of militia officers in the United States service, whose rank is indisputable, causing it to take effect next after all others of like grade. Rank "confers eligibility to exercise command or authority \* \* \* within the limits prescribed by law" (A. R. 6). That the right to command is limited, or that it may not be exercised at all as with chaplains, does not destroy the existence of the rank. In the case of medical officers it is real and was given for a definite object, the experience of the war with Mexico having shown its necessity.

But on the assumption that "The President confers the title in the commission or appointment" (p. 824), it will interest those who think so to know that my own appointment, and I presume all other medical officers made when the Senate was not in session, reads "the President of the United States has promoted you to the rank of Major and Surgeon in the Medical Department" and, the Senate consenting, "you will be commissioned accordingly." Evidently the Secretary of War who signed the letter regarded the commission that followed to be "according" to this tenor, nor did he think he was violating military propriety in addressing the sheet, not merely the envelope, to "Major," etc. As the blank upon which this appointment was made reads "to the rank of \_\_\_\_\_ in the \_\_\_\_\_ Regiment of \_\_\_\_\_ in the service," ("Regiment of" being crossed out by red ink in this paper) it follows that the customary method of promotion in the line is "to the rank of" and not "with the title of."

Further, however distasteful it may be to one's personal predilections, there is a regulation that may be read with profit, and, as it is very short, it is quoted: "839. An officer shall not be addressed in orders or official communications by any other title than that of his actual rank."

Our friends of the opposition are cheerfully offered their choice among the waiting horns of these dilemmas. Not to speak irreverently, it would seem that their present tree will hardly shelter them comfortably, and that the coon's remark to Martin Scott is in order.

Seriously, there can be no possible question that medical officers are entitled and can officially demand to be addressed according to their military rank, as for years has been done by the War Department and by many Department Headquarters. Few of us are disposed to insist upon this in ordinary intercourse, unless it is systematically refused and in an offensive way. It is a minor matter, but with other minor matters helps to make an important whole; and many medical officers having the public good at heart believe that the more closely it is identified, in name as well as in fact, with the great mass of the Army, the more efficient for its good their Department will become.

The confusion that has been created comes from not clearly taking account of the possible existence of rank without command, or with limited command, as already illustrated, and especially of the distinction between rank and grade. A military grade is a class or, as commonly called, a step, that includes all of one designation; and in the line each grade has a title that also defines its rank in relation to any other grade. Thus, all the captains of artillery are of one grade, to which they have been promoted and from which, when they are good, they will be promoted. But their rank



not only establishes their relation to other grades, but also their relation to each other within their own grade. So with medical officers. They are graded as assistant surgeons, surgeons, and so forth, whose rank is established by law, and with that rank they are invested upon attaining the proper grade. When the President promotes a surgeon who has the rank of lieutenant-colonel he advances him, still a surgeon, to the rank of colonel. There is no mystery, and there should be no difficulty in its apprehension, even by the traditional wayfaring man. Whether descriptive or not, it is the rank that the titles bear that establishes the relation medical officers sustain to each other and to other military persons. If the titles came from the kingdom of the Jabberwock, but were accompanied by the rank of colonel, those bearing them would be colonels.

That medical officers are styled surgeons and assistant surgeons is a subject of neither denial nor mortification. But such titles are manifest misnomers. An "assistant" surgeon is rarely an assistant. He is necessarily junior to some one, but he may be senior to his colleague, and frequently he is the only medical officer at the post, in which case he is never spoken of as "the assistant surgeon." Because it is practically untrue, "assistant" is by no means derogatory to those who bear it. So "surgeon" implies limitations that no longer exist. Even in war surgery is a minor although important part of a medical officer's duty. As well might a cavalry officer be called a riding-master, or an artilleryman a range-finder. A part is always less than the whole. Discarding these designations, this branch of the staff should be known, as they really are, as medical officers of various grades and ranks. This would not leave them lieutenants, captains, majors, and so forth, of nothing, as has been intimated; but in the Medical Department (as in fact they now are, although so handicapped by the old and imperfect nomenclature).

Captain Chester next ingeniously confuses the classical title of Doctor with its appropriateness as a military designation. I have lately had under my command an excellent private of the Hospital Corps whose diploma as Doctor is as valid as my own. There are admirable hospital stewards, some graduated physicians and some competent dentists who have the right to this title. They are not given it in military speech because it is not a military designation. Yet the same captain who would refuse on this ground to call a private or a non-commissioned officer Doctor, would not hesitate to speak of or to the Surgeon-General as Doctor. The rule that does not work both ways is bad. And for those, whether of my own corps or of the line, who admit that the designation is appropriate, there is no escape from the conclusion that by that much the wearer is a non-military person. If not recognized by the line, as Captain Chester intimates (but which I doubt), that Doctor as a civil title has many grades, some not desirable, this is not the place to explain the reasons. But it can be confidently asserted that no line officer in addressing a medical officer as Doctor, either has or pretends to have the faintest notion of paying him a higher compliment than that which his appropriate military rank would imply. I am confining myself, as in the original, to military life.

It was asserted (p. 547) that by an abuse of the term "non-combatant" indignity is frequently shown medical officers. Captain Chester insists with some severity that a non-combatant is one who cannot be compelled to storm a breach or to lead a forlorn hope (p. 825), and that courage, ability, willingness or exposure have nothing to do with it. If we assume that the Army is composed of the line of battle and others, then he is correct, for the medical officers are of the others. But it is not the technical, it is the ill-advised use of the expression that is depreciatory; for in both civil and military life it is frequently applied to medical officers in ways that would never for a moment be used toward the other staff. And, curiously, it all results from the constant

presence of such officers with the troops. Those staff officers who are habitually absent are not subject to such criticism. They appear to be looked at simply as detached. There is a flavor of this, doubtless unintentional but showing the habit of mind, in the denial of "place or title" (p. 824)—in the assumption that by virtue of an inherent deficiency they have been made a little lower than the militant angels. But whether eligible for combatant service or not, the practical effect of war in these days is not merely to expose medical officers to danger, as has been abundantly shown, but to put upon them combatant duties on occasion. It is useless to say that such cannot be demanded. When they are accepted, and still more when they are requested, he would be a sorry soldier who would deny their reality. Captain Chester does not forget Charleston Harbor. Ignoring the numberless instances of duty on the field as aides, there is a conspicuous double example of such service before the days of current brevets and when the old traditions might be supposed to be in full force. On February 24, 1861, Major Anderson reported to the Adjutant-General from Fort Sumter: "I feel that I have omitted too long placing officially on record the expression of my acknowledgments and thanks for the kindness shown by Assistant Surgeon S. W. Crawford, Medical Department, and Lieutenants Snyder and Meade, U. S. Engineer Corps, in volunteering to relieve the company officers of this post by taking their turns as officers of the day. Dr. Crawford commenced taking his tour as officer of the day regularly soon after we came over here, and Lieutenants Snyder and Meade offered their services as soon as they felt themselves at liberty to do so. I am under many obligations to these gentlemen for their having thus come forward to the relief of their brother officers, on whom the duties of the post were pressing very heavily."\* When the active defense of Sumter began, the same Crawford was assigned to and commanded a battery on equal terms with his comrades of the line. "Assistant Surgeon Crawford, having no sick in hospital, volunteered to take command of one of the detachments. He and Lieutenant Davis were detailed at the same time with me; and I soon heard their guns on the opposite side of the fort, echoing my own."† On a May morning in 1864 the Major-General commanding an army in Virginia, whose lines had been broken by the Confederate attack, turning to a lieutenant of Engineers and an assistant surgeon, his medical inspector, the only members of his staff then with him, said: "Cannot you gentlemen do something towards rallying these men?" Would it have been in order to say "No"? Was the request a command? Did the engineer, not in command of troops by the order of the President, and the medical officer, who had no combatant functions, do wrong in carrying up to the re-formed line of battle scores of men? If the laws forbid such service it is high time to alter them. When every man with a musket was wanted, could the medical officer, whichever way his inclination turned, have declined leading those men back to their duty? The non-combatant fiction is trash and nonsense when the test is applied. At this very writing every enlisted man connected with the Medical Department in the field against the Sioux is carrying fire-arms, and the Hospital Corps, with carbine and pistol, is doing its own guard duty at Pine Ridge Agency.

In the matter of court-martial service, which is one of Captain Chester's own raising, Major Brooke (p. 1034) effectually disposes of the brevet theory historically. I believe it is a fact, but I have no supporting documents at hand, that the detail of medical officers as members of courts-martial began immediately after they had ac-

\* Official Records of the Rebellion, Vol. I., p. 185.

† Gen. Doubleday's "Reminiscences of Forts Sumter and Moultrie," p. 146.

See also Crawford's "The Genesis of the Civil War," pp. 429-30, and "Inside Sumter in '61," a very interesting paper, by Capt. James Chester, 3d Artillery, in "Battles and Leaders of the Civil War," Vol. I., p. 67.

quired rank by the act of February 11, 1847, although the practice did not become general until during and after the Civil War. A court of inquiry is closely akin to a court-martial; and in 1862 two captains of infantry and the writer constituted such a court, an artillery lieutenant being recorder,\* to examine into certain imputations of cowardice on the field of Antietam made against an officer. Had Captain Chester read his Benet a little more attentively, he would have found that the opinion of Attorney-General Berrien, there depended upon, was delivered in 1829, before medical officers had rank conferred upon them. With their changed status their eligibility also changed.† It hardly bears upon the question, but as Captain Chester thinks it does, it may be mentioned that chaplains are not infrequently ordered upon court-martial duty.

No new matter has been introduced in this rejoinder, which has been confined to the briefest discussion consistent with clearness of the objections raised. The dispassionate consideration of the whole subject is asked of those who read it.

In the late war it was a habit of the artillery when in doubt to "shell the woods," a function full of sound and fury signifying nothing. The gentleman who adds the spice, or we may say the vinegar, to the serious argument already considered, unfortunately did not emerge from his chrysalis state while that discussion was going on. But in this one he observes the traditions of his arm. He has shelled the woods in the old fashion.

It is not worth while to waste space on such grotesque remarks as that a captain in his company office, or a lieutenant on the parade ground, illustrates waiting upon one's juniors; and the original paragraph may stand without further comment, in the hope that generally speaking it will be understood. But when an entirely new issue is opened, and the question of relative promotion, which in no respect is germane to the topic, is raised, a word or two must be said. In war, officers enter the Army from patriotism and ambition; in peace, in general terms the universal law of demand and supply, slightly modified by predilection and temperament, governs. To take the latter condition first: There is no question but the Army can be supplied with doctors who would be content with fifty dollars a month and the rank of sergeant-major, and probably with lieutenants at about the same figures with no promotion. If the line wants such medical attendance, let it say so. The board that sat in New York in October, examined twenty-five candidates and accepted none. It would be easier, would it be better for members of Congress to nominate assistant surgeons from each district? It is not claimed that the medical corps is immaculate or infallible: but it has a standard of requirement that is not easily reached. The young medical officer enters as a mature man, equipped at his own expense by a liberal education for his special functions, with the aptness that educated intelligence gives for the acquisition of other duties. He is not one of that large class of raw youths pertinently described as bringing into the service only their wants. To both of these general statements there are exceptions: but exceptions do not destroy rules. The duties immediately devolving upon a junior medical officer, even in peace, are graver than those resting upon any subaltern of the line as such, and although generally not conspicuous in performance they deserve the substantial recognition they receive. Advancement from his earlier grade is purely a question of time, where vacancies above him and service rendered play no part. When obtained, the best men can only be held by adequate compensation, and compensation includes position as well as pay. That a long novitiate is endurable in the artillery, is no reason that others will submit to a similar ordeal. But the position,

\* Special Orders No. 149, par. 3, Hd. Qrs. 5th Corps, Oct. 15, 1862.

† See also *U. S. Service Magazine*, Vol. I., p. 238 (1864).

such as it is, will not satisfy all. The patriotic demands of the war having subsided, what happened? The assistant surgeons of the Army gave back to civil life, among others, Bartholow, Wagner, Gouley, Dunster, Marsh, Weir, Asch, Thomson, Allen, Lee, Norris, Cowles, Curtis, all of whom have become distinguished. The inducements offered were not sufficient to retain them. Like those was the vast host of eminent volunteer surgeons who declined to enter the open army door. All our good men did not go, but many besides those named resigned.

No one commiserates the intelligent and zealous officers of the line in their weary waiting for promotion more than the medical staff: but they fail to understand how that weary waiting may by itself or in part give title to the advancement claimed. It is gratifying to learn, however, that should we serve long enough and in a sufficiently low grade "no one will begrudge" the same footing to us (p. 828). But evidently these artillery doctors differ in their doctrine.

During the last war, and it will be the same in the next war, five years' service and no volunteer rank was the rule. Discharging the most important duties at the front and at the base, directly charged with the control as well as the lives of hundreds of men in vast general hospitals, and holding advisory positions of great responsibility in the field, these officers remained, without the possibility of advancement, lieutenants in rank. But what was the promotion of all other officers commissioned in 1861-65, whether qualified in advance or not? It is not sufficient to say that they acquired it by "feats of broil and battle." Some did by virtue of most admirable service, others never "set a squadron in the field," either in person or by proxy. It was luck that made so many of the class of '65 captains so quickly, the luck of falling heir to vacancies created by the gallant service of others; and I assert without fear of contradiction that the service rendered by the assistant surgeons of 1861-62, was sufficient to confer upon their military heirs to the latest generation the advancement that now comes with the sixth year.

Upon re-reading this eccentric paper, it appears that the author, like a super-sensitive fulminate (an unstable gun-cotton?) has exploded at the incautious fall of the word "junior," in a modest illustration of the ordinary military relations expressly qualified as a minor matter. No medical officer has ever forgotten the higher obligations of his profession, any more than do his civil brethren become deaf to the calls of poverty in distress. The deprecated "detriment" and "cruelty" will never be realized, nor in the future any more than in the past will camp-followers or others lack proper consideration and care, because of incidents that "in unreflecting eyes" do diminish official respect. One of the characteristics of a really military person, not of a martinet, is the careful and impartial discharge of all duty.

The humor of Artemus Ward where he sacrificed himself to the horrors of war through his wife's relations, is rivalled by this prayer to Heaven to help "those of us who are on the plains" from the distress that is to follow an imagined group of conditions (p. 828). The army on the plains, including the medical staff, can safely be left to work out its own salvation. Fortunately there is neither jealousy nor antagonism between those who serve side by side in the mountains, on the deserts, or among the savages. They are friends in council, and for open questions there is discussion, not combination.

As there is color-blindness, so is there word-incapacity. The wise autocrat, whom we all delight to honor, suggests that the "blind spot" of the retina may typify a vacant area in the region devoted by courtesy to thought. To have to use a paragraph where a word should suffice is exasperating, but must be done. Thus: When a military band plays upon the parade, the garrison has a free concert. When fuel was supplied without charge, it was a gratuitous issue. When the quartermaster transports

some of us to and from the post, the service is without expense to us. These are illustrations of gratuitous work, although there may be a technical claim to the whole. It is unnecessary to continue the primer. Now, when Mrs. A. says : " I think there is nothing the matter with Jimmy, but Mr. A. said it doesn't cost anything for the doctor, so I thought you might as well come ;" and Mrs. B. says : " It is so nice to get back to garrison, where we don't have to pay the doctor every time we think we'd like him " ; and Mrs. C. tells her guest from the city : " It's of no consequence ; we'll have the doctor. You know we get our doctoring free in the Army " ; and then when with delightful *naïveté* they explain all this to the medical officer, it begins to dawn on some people that there is a " gratuitous family physician and general convenience theory " that does not tend to increase popular or official respect. This has no relation whatever to a question of duty ; but it does bear upon the way in which that duty is regarded by others. It is not charged that such inconsiderateness is the rule ; on the contrary, happily, thoughtful politeness is most common, and is almost invariably the habit with those of years and position.

When an officer combines a wild aim with defective ammunition, to say nothing of inability to distinguish friend from foe, the credit of an arm that is nothing if it is not intellectual would seem to require some one interested to order with emphasis, Cease firing !

FT. SHERMAN, Idaho, January, 1891.

## Reviews and Exchanges.

### The War in the Crimea.\*

THE history of the Crimean War, divested of the fictions which newspaper men manage to weave into such narratives, and the coloring which patriotism imparts to statements of fact, becomes a history which may be profitably studied by military men. Not that there is much in it that ought to be imitated, but because there is a great deal in it which ought to be avoided. Beyond the superb valor and dogged determination of the men on the one side, and the tireless activity and fertility of resource exhibited by the commanding engineer on the other, there is nothing to admire in the story. It should be studied, therefore, as a warning rather than a model and its teachings ought to arouse all those nations, who in time of peace neglect to prepare for war.

Kinglake's *Crimea*, while very elaborate, and perhaps accurate, does not present that clear cut picture of the situation in its various phases, which a professional study of the problems involved, demands. The chaff is so much out of proportion to the wheat in his volumes, that, to the military student the mass is hardly worth the winnowing. We are glad therefore, that such an able professional writer as General Hamley has done the work once for all, and presented us with a professional history of "The War in the Crimea" at once concise and comprehensive.

No one can read General Hamley's book without being impressed with the conviction that the issues of war are not under human control. When we consider the enemies arrayed against the allies, and especially against the English army, the successful issue of the conflict seems miraculous. Cholera, starvation, exposure, maladministration and lamentable inexperience in high places were burdens which few armies could have sustained through that terrible winter, even if there had been no Russian army to ward off during the distress.

Lord Raglan was, no doubt, brave, courteous and chivalric; a faithful ally, and zealously devoted to his work; but he was entirely without experience as an active commander (p. 32). He had seen no active service in any capacity for forty years (p. 32). He had been trained as a staff officer, and had never gotten over it. The moment he found himself on the battle-field, his staff training asserted itself, and he wandered away on personal reconnaissances, entirely neglecting the functions of command (p. 35). On the march from the Alma to the south side of Sebastopol, he neglected all those precautions which experience has pronounced indispensable in the presence of an enemy, and almost collided with Menschikoff's army without knowing it (p. 75). He chose the right of the new line, because it was the post of danger, in utter disregard of the fact that his army was not sufficiently strong to occupy the ground (p. 80). He caused the sacrifice of the Light Brigade by issuing an order so carelessly worded as to be capable of fatal misinterpretation (p. 122). And he permitted the second division, 3000 strong to contend for an hour and a half, on the

\**The War in the Crimea*. By General Sir Edward Hamley, K. C. B. Scribner & Welford. Price, \$1.75.

heights of Inkerman, against an army of 35,000 men and 134 guns, when the issue of the struggle involved the safety of the whole allied force (pp. 138-139). Still he retained the confidence of his troops and the respect of his allies, and died at his post of duty, loved and honored by all. There must have been something about such a man which has escaped the historian.

But the dangers of battle were insignificant compared with those ushered in by the great storm of November 14. In the short chapter devoted to the sufferings of the troops during that fatal winter, General Hamley draws a picture of hopeless misery, unsurpassed in the annals of war. That the army not only survived that winter, but was able to face its powerful adversary and maintain its ground, is one of those facts in history which cannot be accounted for without invoking the supernatural.

That much of the misery might have been prevented is not to be doubted, and the Commission which investigated the matter may have been justified in throwing the blame on the commissary general (p. 185); but General Hamley strikes the key-note of the difficulty when he says: "It is the province of the superintending intellect, which knows the instruments it works with, to combine all to harmonious action." (p. 188.) But this important function of command seems to have been entirely neglected by the General-in-Chief. Indeed the heads of staff departments, especially those of supply, had acquired such a spirit of independence during the forty years of peace, and had become so much the creatures of the political party in power, that the General-in-Chief may well have doubted his power to control them. Certainly he made no adequate efforts in that direction, and whether this neglect was the result of want of power or want of experience and reasonable foresight the result was deplorable. That the result was wholly due to neglect is proved by the fact that the English army found itself, on the approach of the second winter, in as good a condition of comfort and efficiency as if it had been in camp at Aldershot (p. 296).

We shall not attempt to discuss the strategy and tactics of the campaign or the engineering ability exhibited by the besiegers. In all the battles the heroic conduct of the men is the most striking feature, and in the siege operations their courage and endurance are beyond praise. That picture of 290 men holding the trenches of the English attack against twenty times their numbers, while they roasted and ground their coffee in fragments of shell which had been fired at them by the enemy, (p. 193) is grim enough to stand as the representative picture of that memorable but misnamed siege. Indeed, as we read about the underground warfare, always so ably countered by the wary Todleben (p. 196), and the aggressive engineering tactics to which he resorted (p. 197), we are at a loss sometimes to tell which of the two belligerents was the assailant.

At one period, during Canrobert's command of the French army, the siege seemed to languish, and a want of willingness to co-operate began to manifest itself, which have been considered a sign that the French at least were sick and tired of the undertaking. But discoveries made since the downfall of Napoleon III. have thrown new light upon that period, which fully explains the otherwise inexplicable actions of Canrobert. The Emperor, ever anxious about the stability of his throne, and thirsting for military fame as the surest passport to the favor of the people, attempted to control the operations of the allied armies by telegraph. This is a kind of generalship which we have heard of in this country. But it never succeeds. Canrobert was too good a soldier to play the fool, even to please the Emperor, and too loyal to his master to disobey his commands. He therefore resigned his command, and "sanguinary and glorious" Félissier was appointed his successor. From that moment to the end things wore a brighter aspect. Fighting became frequent and desperate, losses were heavier, and progress more rapid. The end was in sight, and Félissier, in spite even of posi-



tive orders to the contrary from the Emperor, persisted in carrying out his own plans. And the result justified his disobedience.

"The War in the Crimea," by General Hamley, is a book worthy of a place on every officer's book shelves.

JAMES CHESTER,  
Captain 3d Artillery.

### Biographical Register, U. S. Military Academy.\*

The modest first publication of this Register contained the records of the first 1493 graduates of the Academy, including those of the class of 1850. Successive editions appeared in 1868 and 1879, and, finally, after another period of eleven years, the crowning effort is given us in these three sumptuous volumes, printed from new plates, and containing the records of the 3384 graduates, inclusive of the class of 1890.

For facility of reference, the records of the first thousand graduates are placed in the first volume, of the second thousand in the second, and the remainder in the third.

In addition to the records of individuals, the work comprises ; 1, a list of the Inspectors and of the Superintendents of the Academy ; 2, of the members of the Academic Board ; 3, of the battles, combats, actions, etc., fought by the U. S. Armies since the establishment of the Academy ; being those of the War of 1812-15 with Great Britain, the War with Mexico, the Rebellion of 1861-66, and the Indian wars ; 4, a list of the military posts, forts and arsenals of the United States ; and, 5, a statement of the civil occupations of the graduates. These features were common to the editions of 1868 and 1879, but the value of this edition is enhanced by more than a hundred biographical sketches of deceased graduates and by a most interesting history of the Academy from 1802 till 1833.

The 3384 records thus presented, after, as the compiler states, exhausting every source of information, public and private, the ransacking of archives, examining tons of manuscript, and writing letters by thousands, are believed to be as nearly complete as such a work can, under the circumstances, be made. Less than one tenth of the graduates applied to for information to be incorporated in this edition made any response whatever, and many of the replies received contained only vague and uncertain answers. This is particularly applicable to those graduates who have left the service, and explains the remark sometimes occurring under the sub-heading *Civil History* : "Unknown, no authentic information having been received." But, on the whole, the records are wonderfully complete, and, supplemented by the numerous biographical sketches, make an interesting study, affording no little insight into the country's history. This is true of civil as well as of military affairs.

It is a fact now generally forgotten, but amply illustrated in this work, that early graduates of the U. S. Military Academy, loaned by the Government to various corporations, were the pioneers in railroad and canal construction. Thus, McNeill, Swift, Barney, Cook, Trimble and others were employed in the survey of the Baltimore and Ohio Railroad, the first in America designed for general transportation purposes. Graduates of the Academy were among the engineers who surveyed the routes for the Chesapeake and Ohio and for the James River and Kanawha canals. For there were at that time few educated civil engineers in the United States to conduct large works.

Their services were sought in other countries as well. Benjamin H. Wright

\**Biographical Register of the Officers and Graduates of the U. S. Military Academy at West Point, N. Y., from its establishment, in 1802, to 1890, with the early History of the United States Military Academy.* By Bvt. Maj.-Gen. George W. Cullum, Colonel of Engineers, U. S. Army, Retired. Third edition, revised and enlarged. Three volumes. Boston and New York: Houghton, Mifflin and Company.

prompted the first establishment of railroads in Cuba, and executed the survey of the first railroad from Havana to Guines. What George W. Whistler did for railroads in Russia is entertainingly told in the biographical sketch following his record.

With necessary brevity, the military services of the graduates are also recounted although still, as in the previous editions, the stern remark, "Joined in the Rebellion of 1861-66 against the United States," closes the military records of those who joined the Confederate cause against the United States. Military success achieved in any cause, however ill-judged, they owed to their *Alma Mater*, and it would seem that in this work all military successes and failures of graduates should be recorded; because, upon the results of its teachings, so made of record, must the Academy base its reputation for usefulness as a military school.

The preface to the first edition of this work, retained in the third, statistically demonstrates the injustice of the anathemas pronounced against the Academy by the ignorant and the unscrupulous for the course taken in the Rebellion by some of its graduates. Space here available permits only the citation of the fact that but about one-fifth of the graduated officers joined in the Rebellion, that one-half of those from the South stood by the Stars and Stripes; and that all from the North (save sixteen who dishonored their *Alma Mater*) and one hundred and ten in civil life who re-entered the service, fought the good fight for the Union. Surely no such favorable showing can be made by any other body of public officials: not by the then living ex-Presidents of the United States; by the Judges of the Supreme Court; by Senators or Representatives; by Agents of the State, Treasury, Interior, or Post Office Departments; by the officers of the Navy; or by officers of the Army appointed from civil life. But this is aside from the purpose of the present writing. Whether the cause they espoused was good or bad, whether they fought well or ill, the deeds of all graduates should, it is contended, be recorded with unsparing impartiality in such a work as this.

The records show the services of graduates in three wars, besides almost innumerable Indian contests. At the beginning of the War of 1812 there were but sixty-five graduates of the Academy in service. Of those who served in the field, one-sixth laid down their lives in the struggle, and one-fourth were killed or wounded. On the breaking out of the Mexican War, the Army was mostly officered by graduates, over five hundred of whom were in service. General Scott said of them in his letter to the commission appointed under the Act of June 21, 1860, to examine into the organization, system of discipline and course of instruction of the Military Academy: "I give it as my fixed opinion that, but for our graduated cadets, the war between the United States and Mexico might, and probably would, have lasted four or five years, with, in its first half, more defeats than victories falling to our share; whereas, in less than two campaigns, we conquered a great country and a peace, without the loss of a single battle or skirmish." Of the graduates engaged in the battles for the Union, one-fifth died for their country, and more than one-third were wounded. Although only a few more than one-third of our general officers appointed during the Rebellion were graduates of the Academy, yet they commanded most of our armies and a large majority of our army corps. Of the promotions to be major-generals two-thirds were of graduates; and at the close of the struggle, eight graduates controlled the armies of the North and South.

An interesting, indeed an invaluable feature of this edition of the work is the early history of the Academy already referred to, which closes the third volume. Undertaken under the most discouraging circumstances, as the public archives relating to the early records of the Academy have been almost wholly destroyed. General Cullum has collected from private sources, and woven into a charming narrative, everything necessary to an understanding of the birth, feeble childhood, and subsequent vigorous

growth of the Academy. This has for many years been expected from him ; for it has long been universally admitted that he alone was qualified to tell the story.

It is plain that the monument erected at West Point in memory of General Thayer, the " Father of the Military Academy," is a merited recognition of his worth and services. In this work General Cullum has erected a worthy monument to himself, the Academy's Historian.

R. H. H.

### The Indian Mutiny of 1857.\*

This appears to be an abridgement of the author's greater work on the Indian battles. The preface, etc., calls, vividly to the American mind that the causes of rebellion do not lie in one immediate act which gives name and color to the struggle, but that it is the outcome of long accumulating differences. In India the native soldier, mistakenly, as was shown, felt that he had become able to throw off a foreign yoke and he took the first steps, but there was a long-growing public feeling to back him.

The book cites the following as wrongs lying at the root of the rebellion, which the author insists on its being considered, though his title calls it *The Mutiny* :

1. The loss of British prestige in Afghanistan in 1838.
2. The sapping of direct military authority by the Government's inducing appeals to be made from immediate commanders to a distant central authority. The immediate commander was lowered, the central authority was too distant to command respect.
3. Breach of faith in denying the habitual extra allowances to the Sipahi [Sepoy] after the annexation of the province of Sindh.
4. The loss of civil influence to the Sipahi in Oudh after its annexation to the Crown.
5. The Government's refusal to care for the family of the deposed King, Nana Sahib.
6. The Thomasonian change of land-tenure in the North West provinces.
7. The Inam Commission investigation of vested rights in the estates of the Maratha country.
8. Refusing to the Rana of Jhansi the Hindu privilege of adopting a son to inherit, declaring the province as lapsed to the sovereign power, the Raja having died without issue.

In tracing the causes (3) of loss of faith of the Sipahi, the author shows that the administrators of other governments as well as ours claim that the interests of the many justify the cheating of the individual. Extra territorial service allowances were cut off from the soldier on that territory as soon as Sindh was attached to the Crown.

As to the Thomasonian change of land-tenure (6) we think that the book leaves something unproved or has left an inference undrawn on page 411. He does not show that the system was abandoned by the Queen's proclamation of amnesty, nor whether it still may be working to the great advantage of India, and to the acceptance of the peasant.

The arch conspirator and most commanding spirit of the rebellion was Ahmad-ullah. The Maulavi—The Learned [Doctor?]. "A man of great abilities, of undaunted courage, of stern determination, and by far the best soldier among the rebels." He it was, who at Calcutta apprehended the idea that the greased cartridge placed in his hand the match needed to start the flame of rebellion.

The author arraigns the Government for disregarding numerous warnings of the intended risings, and charges that its comprehension only went step by step with the re-

*The Indian Mutiny of 1857.* By Colonel G. B. Malleon, C. S. I. Scribner & Welford, New York, 1897. Price, \$1.75.

bellion. Aye, more, that some members of the Government to their dying day only considered it a mutiny [the author himself would appear to fall into the same mistake in the title of his book], ignoring the wide-spread conspiracy for the overthrow of British power. The victimizing such men as Colonel Mitchell to support the assumption that there was no cause for distrust of the native infantry will ever condemn the Government to obloquy. Was it petty jealousy of prerogative, or was it playing a game of bluff to avoid precipitating what it dreaded, when it reprimanded General Hearsey for promoting to hawaldar, on the spot, the loyal native Shaikh Paltu, for saving the lives of two British officers?

The author analyses the individuals constituting the Calcutta Government. His main charge is their ignorance of the people: a common fault in all attempts to govern distant provinces from home-details. He picks out as weak and incompetent advisers to Lord Canning and holds up on a needle point Halliday, Beadon, and Birch, and stigmatizes Colvin and Hewitt as actors. An example of how ignorant a great man may be made through preconceived ideas and contempt for an inferior race is well touched off thus: "On his journey homeward, Lord Dalhousie had written a minute, in which he had painted in roseate hues the condition of India, the contentment of the Sipahis, and the improbability of disturbance from any cause whatever. He had quitted India amid the applause, largely mingled with regret at his departure, of multitudes of sorrowing disciples. By these he was revered as the greatest of men. If some captious subaltern dared to insinuate that the discipline of the army had deteriorated, that the minds of the Sipahis were inflamed against their masters—he was silenced by the contemptuous remark that it was improbable that his knowledge could be more deep-reaching than was that of Lord Dalhousie."

The neglect or refusal of Lord Canning, head of the Government, to act on Elphinstone's suggestion to despatch a special steamer to England, anticipating the regular mail steamer by some days, appears to be about the most culpable of all his perversities. It still remains unexplained or the charge would not be brought again after thirty-four years. The next charge is almost as heavy: his insulting refusal to accept the offered services of, and to organize the British, German, French and American civilians of Calcutta into a regiment each of cavalry, and infantry, and a field battery. He proved thereby that British pluck and British power were equal to any emergency—by the sacrifice of enough lives. Blundering, and want of energy and foresight are complained of everywhere, at Mirath, at Firuzpur, and at Calcutta, with evident reason. None from the Commander-in-Chief Anson down had the backbone or prescience to disarm Native troops while it was yet possible.

The civilians appear to have been urging the danger on the authorities, while both the Government and the military were feigning a confidence they did not feel, or were too proud to acknowledge their fears. Canning and Colvin appear to have been as great experts in proclamations as were some of our generals during our unpleasantness, and in speeches which should have drawn tears from stones, but the Sipahis appear to have enjoyed the joke. Everything considered, the administration was from beginning to end a blundering muddle, whilst with few exceptions the fighting and field work were just splendid, glorious, if there be glory in war. His reasonable British pride never leads the author to smooth over defeat, nor to screen cowardice.

We suppose this is on the principle of giving the devil his due, for he fairly skewers Canning, in addition to his other crimes, for his supineness in mid-July in not succoring Havelock. With places changed, Havelock in Calcutta and Canning near Lakhnao there would have been 1200 available men detached there immediately for its relief.

It is hard to write controversially and consistently at once. After the author gets Canning into the field away from his Calcutta advisers, he receives great praise in

the book. After holding him up to contempt (for a man is responsible for his advisers) in the Government, he gets full credit in his field operations. And again, after arraigning the Government on the preceding eight causes of rebellion and charging it with bad faith or injustice in all, and clearly showing what it would be capable of, opportunity offering, in the case of the Maharajah of Sindh, the author says: "He knew from his own dealings with them [the British] that they were to be trusted implicitly. Under this suzerainty he enjoyed all the internal authority his ancestors had wielded, whilst his suzerain bound himself to insure him against all aggression from without." And in another place: "Wherever it [England] has conquered, it has planted principles of order, of justice, of good government." He may wish to distinguish between "principles" and practice.

A good deal of butchery shows forth in the account, and the author apologizes in his concluding chapter for acts that have been severely reprehended, especially by England's enemies. But we do not think that we on the other side of the earth are good judges of the necessity—when we remember the odds the white man fought against—his inability to hold, guard, and feed hordes of prisoners—that prisoners released were promptly rearmed against him—the fierce revenge for butcheries of wives and children—that the dark race took no prisoners—that with them it was the work of extermination—and many other inciting causes, we should be chary of condemnation. It may well be believed that every living actor in those scenes would manfully stand up to-day and say "and I would do so again."

Of the pusillanimity of the Native before the bayonet it is hard to say how much is due to race, how much to lack of organization, how much to ignorance and how much to the habit of servility to a dominant people. The Sipahi was not wanting in individual self-sacrifice nor in heroism, but in bodies they appear to have always shrunk before the face of the white man. When led by the British officer the loyal Natives appeared to fight about as well as the best. The rebels never appeared to profit by a victory, but, like Nana Sahib, diverted themselves in enjoying their new-found transitory grandeur.

They must be called child-like.

The comments and recommendations on the present policy in Indian affairs are worthy of very respectful considerations; and he must be a very rabid republican who cannot see the dangers pointed out in a representative system of government. Still the author's calling a regulation of Hindu marriage laws "a fussy interference" would indicate that long contact with iniquity blunts the moral perception. How he can reconcile the condition of a Hindu widow with a sense of "British justice" is not apparent to an American. Where is the manhood in a British court being forced by the Queen's proclamation to turn over to the tender mercies of Hindu law a Hindu woman affianced by selfish parents to a man in her infancy, and this law to force her into the arms of a man she loathed from her soul? These are crying evils known to the outer world through *The Pundita Ramabai*. The Indian widow's condition is more degrading than when she was subjected to the sati (suttee). Now the agony of incineration is simply spread over years of domestic roasting. We are quite willing to admit the virility of British power in the suppression of the rebellion, but in radically exalting the Indian woman to humanity, British power or public opinion is lacking, as with us in our Mormon ulcer; we, however, are at least making a fussy interference, which is better than nothing.

The book is well printed, contains excellent portraits of Colin Campbell, Henry Havelock and James Outram, and plans of the sieges of Dehli and Lakhnao.

It has also a valuable index.

In his preface the author tells us something about discarding the old spelling of

Indian proper names, but the new is somewhat puzzling with a Black's map of India. It is very hard to find the place by the new name, the orthography is so different. Also, it is to be regretted that he did not treat us to a short synopsis of pronunciation. In some words every vowel takes the acute accent—Rājputānā, Māhārājā. Two and three accents are common to a word. What is their use? The evidently unnecessary introduction of the *h* is a step backward, is a blemish also in an artistic sense. The much used *h* gives trouble, as it is in all sorts of combination. In some places it would appear to be unpronounceable [Laknao] even as a guttural; is it merely, as in Spanish, a separator of syllables? In *Oudh* does it change the palatal *d*, Irish and Spanish fashion into a dental? In *Mardha* is it our *th* or is it divided Ma-rāt-hā? The author's engraver differs with him in spelling Jumnah, spelling it Jumná; hence, does the *h* keep us from saying Jumnay? We must now write *Dehli*, not *Delhij*, any more, but to pronounce it correctly is the reader's affair. May be an explanation of the pronunciation would be an insult to the intelligence of the British reader, who is no doubt up on Hindu names.

The book is most creditable to author and publisher. It is apparently reliable in its facts and conclusions. Its story is quite as full as the general reader will need. The action is divided into periods, and at these intervals there are brought up a *resumé* and actual status of operations, which serves well to impress the whole as a picture on the mind.

The author is a master in imbuing one with his own enthusiasm, and we feel ourselves—now rushing forward with the forlorn hope, now being cheered forward by the valiant leaders, now in the last struggle, now maddened with victory, now exhausted with the revulsion.

J. H.

### Lectures on the Electro-magnet.\*

The subject matter treated in this little book of 280 pages is that of the soft-iron core, surrounded by insulated copper wire which carries the electric current.

The author, Professor Silvanus P. Thompson, is too widely known to the electrical world to need an introduction here, and in the four lectures making up the neat little volume printed by the W. J. Johnston Company, of New York, proprietors of the *Electrical World*, the author gives a most comprehensive treatise on that important mechanism, the electro-magnet, which finds a place in almost every form of electrical apparatus, and fundamentally in well-known telegraph, telephone, dynamo and motor. The great strides in the applications of electricity to the arts and sciences have been so wonderful and have come upon us with such rapidity of succession within a score of years that it has seemed difficult to keep pace with all the principles upon which they rest, and to fathom the reasons for the effects and influence of the electric current. The author of "Lectures on the Electro-magnet" has done much to keep electrical science and progress hand-in-hand, and in this series of lectures, now presented in book form, most completely analyzes the electro-magnet. Beginning with the history of this mechanism, he traces out its various forms, the properties of all the different parts, and the governing law. He then proceeds to an explanation of principles of design and construction, noting those of the magnetic circuit, and the calculation of excitation, leakage, etc. The author then enters, more in detail, into special designs and in a thoroughly comprehensive manner shows how to adapt the electro-magnet for the use to which it is to be put. Lastly, he gives a clear treatise on electro-magnetic mechanism.

\**Lectures on the Electro-magnet.* By Silvanus P. Thompson, D. Sc., B.A., M.I.E.E. Printed by The W. J. Johnston Company, Ltd., New York, 1891.



These lectures are freely illustrated by cuts and diagrams which very materially increase their value to the student and thoughtful reader. The book will be eagerly welcomed by all as a most valuable addition to electrical scientific literature, and should meet with a ready sale.

S. R.

### A New Departure.

One feature of modern military fiction is the strong spice of garrison scandal with which the average novelist seasons his or her book.

It is especially conspicuous in the British school represented by Ouida, and Winter and Kipling. Our own King has not escaped the soft impeachment of making unnecessary excavations for the foundation of some of his early and otherwise admirable structures. The turning up of the sacred soil in this way "is apt to breed moral malaria," said some austere critics.

Doubtless a little of this sauce will suffice—the less the better for the young people who devour Lever and Marryat and King with equal appetite and impartiality. And for an unbiased test of an author's skill, in clothing his characters with flesh-and-blood realism, give me the school girl yet in her teens. The wrapt interest with which she reads "Marion's Faith" or "Between the Lines" is like the silent worship with which one gazes at a beautiful portrait. It is only broken by an occasional murmur of satisfaction or an appeal to the elderly and slippered veteran who may be watching her with fond paternal eyes: "Papa! did you ever meet Colonel Brent in the War? Captain King speaks of him here." To which query the S. V. replies, evasively, loth to break the delicious faith with which each person and thing in the book is taken at its nominal value.

Therefore, when a writer has achieved a solid footing in the glorious guild of authorship, he can afford to discard the baser materials used by some of his contemporaries and work with a more exalted aim than mere bread and butter. The lives of those "whose trade it is to die" are full of healthy, stirring experiences for the book maker.

Be that as it may, Captain King's latest novel, "An Army Portia,"\* is in many respects his most important work. It is a story "with a moral," but without a trace of the prosiness we are apt to associate with such a commendable attribute. It is full of action, clever dialogue and dramatic situations. Withal it illustrates the noblest use of fiction as a vehicle for the exposure of a great public evil. "Put Yourself in His Place" aroused the world to the existence of a species of white slavery in Christian England, and so "An Army Portia" will do much to shape public opinion in America with regard to the license of the Press; especially as it affects the Army and those public servants who are, often, too far away to defend themselves from the reckless or malicious attacks to which they are liable so long as reporters must fill space and newspapers invent "circulation." A case of this kind which attracted, but yesterday, the attention of the entire country and of the Administration, forms the theme of "An Army Portia." It is the truth "that is stranger than fiction." It is a startling picture of the risks that threaten every commanding officer; one black sheep in his fold, with the aid of a smart newsgatherer, may, in the twinkling of an eye, obscure for the moment the lustre of an honorable reputation.

In this work Captain King is, perhaps unconsciously, working on the same lines as the Military Service Institution. One of its oldest members, a leader of soldiers and of students, has said that the duty of the Institution was "to form intelligent public opinion upon military affairs, and, in forming it, will secure for itself the praise of having spread through our land the irresistible force to which a Webster bowed. This

\* *An Army Portia*, by Charles King. J. B. Lippincott Co., Philadelphia.



new effort, alone, will secure to our Army and Navy the consideration due those forces. \* \* \* In America the people rule. Instruct the people."

"An Army Portia" is full of instruction as well as of entertainment. It is bound to make an impression, not only on men and women in civil life, but perhaps a deeper one upon the youth of this country—the coming lawmakers and their wives.

It is not our purpose to dwell upon the book in detail, although the Dickens-like touch with which some of the people in this "o'er true tale" are drawn, merits more than passing notice.

Captain King has also assisted to launch a collection of short stories by well-known literary amateurs, under the title of "The Colonel's Christmas Dinner."\* They are all more or less entertaining, but the leading chapter easily bears off the palm, or we might suggestively say "takes the cake." In the preparations for the dinner and the toothsome result the reader is made to realize the generosity, good fellowship and true *esprit de corps* which a garrison emergency is sure to bring to the surface. We confess that the story had a reminiscent effect upon us, and that we rose from its perusal with a suspicious moisture behind our eye-glasses and an unwonted aridity in the mouth, for which we are inclined to hold the gifted Charles personally responsible.

T. F. R.

### New York in the War of the Rebellion.†

Before the advent of Captain Phisterer's work the State of New York possessed no official history of its record in the War of the Rebellion.

After overcoming many difficulties and giving to this task eight years of time not occupied by official duties, the author presents his history to the citizens of the Empire State.

The work is divided into three parts; the first treats of occurrences in and matters affecting the State; the second refers to occurrences in the field, and the third gives sketches of the organizations in the service from this State. These latter are necessarily condensed and do not go into particulars regarding marches, camps and actions on the field of battle, which must be left to the regimental historians. In an appendix are reproduced some War Department statements of general interest. Each part and division is preceded by remarks, a perusal of which will explain their scope and intent. To bring the work within reasonable limits much had to be condensed, but the principal facts and matters of importance have been recorded and almost all is based on official records.

The book is a handsomely printed imperial octavo, and those capable of judging praise highly its completeness and accuracy.

J. C. B.

### Rosengarten's German Soldier, Second Edition.‡

In JOURNAL No. 27, it was stated by "C," concerning the first edition of this work, that "this is a handy little volume of 175 pages, replete with interesting information, not only to the German, but also to the general reader. It consists chiefly of short biographical sketches of the many distinguished Germans who have been identified with our military history, and its value as a book of reference is greatly enhanced by an excellent index. We have no means of verifying its biographical correctness, and could wish that some of its more striking statements were supported by references;

\* *The Colonel's Christmas Dinner*, by Captain Charles King, U. S. A.

† *New York in the War of the Rebellion, 1861-65*. By Frederic Phisterer, late captain U. S. Army. Weed, Parsons & Company, Albany, N. Y.

‡ *The German Soldier in the Wars of the United States*. By J. G. Rosengarten. J. B. Lippincott Co., Philadelphia. 1891.

but the author evidently aimed at accuracy, and drew his data from sources worthy of credit.

"That Germany should have been largely represented in all our armies is not to be wondered at in view of the large German element in our population and the known military spirit of the race; but that so many purely German organizations existed during the Revolution and the Rebellion is apt to astonish those who have not given special attention to the subject. In both emergencies our citizens of German blood stood shoulder to shoulder for the flag of their adoption, and did good service. The military education which many had brought from Fatherland was a capital which these emergencies made invaluable. It was the leaven which transformed men into soldiers, and it was rather unwise to hold it together in heaps. Better results would have been obtained if it had been distributed more evenly. The great amalgam which constitutes our nation should not be permitted to resolve itself into its original elements whenever a national emergency arises. That it has a tendency in this direction our author unintentionally but forcibly presents, and statesmen should take notice in time and devise a remedy."

The present edition, uniform in general appearance with the first, contains much additional matter; and references are given where practicable. J. C. B.

---

#### FOR REVIEW.

*The Colonel's Christmas Dinner.* Edited by Captain Charles King, U. S. Army. Philadelphia: L. R. Hamersley & Co. 1890.

*An Army Portia.* By Captain Charles King, U. S. A. Philadelphia: J. B. Lippincott Co. 1890.

*New York in the War of the Rebellion, 1861 to 1865.* Compiled by Frederick Phisnerer, late Captain U. S. Army. Albany: Weed, Parsons & Co. 1890.

*The Indian Mutiny of 1857.* By Colonel G. B. Malleson, C. S. I. New York: Scribner & Welford. 1891.

*Biographical Register of the Officers and Graduates of the U. S. Military Academy, at West Point, N. Y., from its Establishment in 1802 to 1890.* By Bvt. Major-General George W. Cullum, Col. of Eng., U. S. A. Reprint. Boston: Houghton, Mifflin & Co. 1891.

*Modern War.* By General V. Derrécagaix. Translated from the French by Lieut. C. W. Foster, 3d Regiment of Artillery, U. S. A. Part II. Grand Tactics. Washington: James J. Chapman. 1890.

*Great Captains: Hannibal.* By Theodore A. Dodge, Bvt. Lieut.-Col. U. S. A. Boston and New York: Houghton, Mifflin & Co. 1891.

*Lectures on the Electro-Magnet.* By Prof. Silvanus Thompson, D.Sc., M.I.E.E. etc. W. J. Johnston Company, New York.

## OUR EXCHANGES.

## ARTICLES OF MORE OR LESS MILITARY INTEREST.

## ARGENTINE REPUBLIC.

*Revista Científico-Militar.* (September and October, 1890.)

*Boletín del Centro Naval.* (October and November, 1890.)

## ENGLAND.

*Journal of the Royal United Service Institution.* (Vol. 34, No. 155.) The Transport of the Sick and Wounded in Time of War. The Employment of Large Masses of Cavalry, of Movable Fortifications and of Smokeless Powder. The Transport of Troops by Rail, etc. The Defense of India and its Imperial Aspect. (Vol. 35, No. 135.) The Entry and Training of Naval Officers. Cruiser War and Coast Defense. Considerations of the Employment of Torpedo Boats. Tactics and Vertical Fire. The Storming of Doobiyán.

*Proceedings of the Royal Artillery Institution.* (January, 1891) Relation of the Battle of Dettingen. Changes in the Royal Artillery. The Origin of our Present Drill Book.

*Aldershot Military Society.* Imperial Federation and the Defense of the Empire.

*The Illustrated Naval and Military Magazine.* (December, 1890) The American War, 1861-65. Six Months with a Russian Family. A Naval Episode. The Practice of Night-Firing. Passing the Russian Lines. Some Lessons from the Franco-Chinese War. Smokeless Powders.

*The United Service Magazine.* (December, 1890) The Loss of *H. M. S. Serpent*. Tactical Guides for the Formation and Leading of the Cavalry Division. The Education of Infantry Militia Officers. Naval Officers and Service Information. Red Tape in the Army. (January, 1891) War Office Administration. General Arthur Görgei and the Hungarian War. The Material Value of the Imperial Connection to the Australasian Colonies. The Big Gun Question. Tactical Guides for the Formation and Leading of the Cavalry Division. The New Rifle. The Development of Modern Artillery. The War Training of the Navy.

## FRANCE.

*Revue Militaire de L'Etranger.* (October, 1890) The Re-engagements of Non-commissioned Officers in the Russian Army. The Topographic Corps in Russia. The Bulgarian Army in 1890. The Military Forces of Sweden.

*Le Progrès Militaire.* The Promotion of General Officers. Quick-firing Guns. Voluntary Enlistments. Torpedo Shell. The French Colonial Troops.

*Revue du Cercle Militaire.* The Military Uses of Short-hand. The German Imperial Manœuvres in Silesia. Progress in European Navies. Studies on the English Armies. Creusot Plates in the United States. The New Equipment of Infantry.

## INDIA.

*Journal of the United Service Institution of India, Vol. 19, No. 83.* Recruiting for the Native Army. The Difficulties Attendant on Assuming the Initiative in Modern European Warfare. The Resurrection of the Lance.

## ITALY.

*Rivista di Artiglieria e Genio.* (Oct., 1890) The Exact Solution of the Ballistic Problem. The Fortifications of North-eastern France. Military Telephones. Gruson Firing Experiments.

## SPAIN.

*Memorial de Artilleria.* (December, 1890)

## UNITED STATES.

*The Century.* (January, 1891) Among the Mongols of the Azure Lake. The Memoirs of Talleyrand. A Romance of Morgan's Rough Riders. Colonel Carter of Cartersville. The Missions of Alta California. Along the Lower James. (February) Fremont in the Conquest of California. The Discovery of Gold in California. Theodore Rousseau and the French Landscape School. Colonel Carter of Cartersville. The Memoirs of Talleyrand.

*Outing.* (January, 1891) Cycling in Mid-Atlantic. Fishing on the Ice in the Sea of Azoff. A Shooting Adventure in South China. Tennis Honors in 1890. The Active Militia of Canada. A Wolf Hunt in France.

*Proceedings of the United States Naval Institute.* Vol. 16, No. 4. The Protection of the Hulls of Vessels by Lacquer. The System of Naval Training and Discipline Required to Promote Efficiency and Attract Americans. A Study of the Movements of the Atmosphere.

*The United Service.* (January, 1891) Wellington. Some Changes Effected in the French Army by the Revolution of 1789-93. History of the Mormon Rebellion of 1856-57. Modern Armor. The *Harriet Lane*. (February) The Influence of Small Calibre Magazine Rifles on Smokeless Powder on Tactics. A Double Winner. The History of the U. S. Marine Corps. The Evacuation of New Madrid by the Federals.

*The North American Review.* (February, 1891) Gettysburg Thirty Years After. A Deliberative Body. The Talleyrand Memoirs. The Jamaica Exhibition. Can Lawyers be Honest? Has Christianity Failed?

*The Railroad and Engineering Journal.* (December, 1890) The Architect and the Engineer. The Launch of the *Maine*. United States Naval Progress. Army Ordnance Notes. The Submarine Mine and Torpedo in Harbor Defense. The Engines of Cruiser No. 12. (January, 1891) A Japanese Cruiser. The Braye Tunnel. Our Navy in Time of Peace. The United States Navy. The Fastest Cruiser. (February) The Panama Canal. Our Navy in Time of Peace. The United States Navy. Foreign Naval Notes.

*The Pennsylvania Magazine of History and Biography.* (January, 1891) Itinerary of General Washington from June 15, 1775, to December 23, 1783. A Sketch of William and Thomas Biddle. Memoir of Israel Daniel Rupp, the Historian. An Account of the Assault on Quebec, 1775.

*The Popular Science Monthly.* (January, 1891) New Chapters in the Warfare of Science. The Peopling of America. The Storage of Electricity. The Decline of Rural New England. (February) Precision in Physical Training. Chinese Buddhism. Coeducation in Swiss Universities.

*Political Science Quarterly.* (December, 1890) Evolution of Copyright. Political Economy in France. The Taxation of Corporations.

*Monthly Weather Review* (To date).

*Army and Navy Register* (To date).

*Philadelphia Weekly Times* (To date).

*The Boston Courier* (To date).

*Home and Country* (To date).

*Kansas City Times* (To date).

*Table Talk* (To date).

*The Electrical World* (To date).

*The New York Critic* (To date).

*Pharmacology of the Newer Materia Medica* (To date).

*Johns Hopkins University Publications* (To date).

*The 7th Regiment Gazette* (To date).

*St. Nicholas* (To date).

## Annual Report—1890.

---

*To the Members of the Military Service Institution.*

GENTLEMEN:

It is again my privilege, in behalf of the Executive Council, to report the progress made by the Institution.

In my report for 1888 were set forth, in some detail, my views as to the true value of such a service auxiliary, and that its success must depend upon "united and harmonious effort."

The extension, in 1889, of the influence of the Military Service Institution by means of branches, was a wise measure, resulting in an increase of membership and of contributions of essays on professional topics; many of these bear evidence of thought, and all have a tendency to stimulate officers to keep abreast of the rapid march of military invention and improvement peculiar to our time.

The judicious selections of material made by the Publication Committee, seconded by the industry and experience of the Editors, have combined to produce the leading military periodical in the country, one holding a high place in the professional literature of the day.

The Treasurer's report for the fiscal year shows: Balance on hand, January 1st, 1890, \$3,565.45; Received during 1890, \$6,752.80; Expended, \$5,776.52; Remaining on hand, January 1st, 1891, \$4,541.73.

In connection with the subject of revenue, the Chief Clerk of the Institution, Mr. Otto Mueck, deserves especial mention for the zeal and ability with which, for the last six years, he has conducted the Advertising Department of the JOURNAL.

The Gold Medal of the Institution has been awarded to 2d Lieut. GEORGE W. READ, 5th Cavalry, for the best essay on "A Practical Scheme for Training the Regular Army in Field Duties for War."

The Library and Museum continue to receive contributions of valuable books and relics.

The accession to the membership during the year number one hundred and two.

The subject of extending the limit within which Associate members may be elected has been under discussion; this would seem to be desirable in view of the increase in the number of applications from this class to join the Institution.

Very respectfully,

J. M. SCHOFIELD,

*Major-General, U. S. A.*

*President.*



## Announcements.

---

### I.

AT a meeting of the Executive Council of the Military Service Institution held on the 14th day of January, 1891, a letter was received from General J. B. FRY, tendering his resignation as Vice-President of the Institution.

The Council, while acknowledging the force of General FRY's reasons for this course, and deeply regretting the necessity for the severance of his official relations with the Military Service Institution, could not let an occasion of so much interest and importance to the Institution pass by without placing its sentiments upon record in the JOURNAL.

Colonel JOHN HAMILTON was therefore delegated to formulate an expression of these sentiments for publication in the next succeeding number of the JOURNAL, and submits the following:

The Council in receiving the resignation of General JAMES B. FRY as Vice-President, wishes to express its deep regret at the loss of his services.

He, and our past Secretary and present Vice-President, General RODENBOUGH, very properly share the honors of fathering the Institution. They have nurtured it in a sickly infancy, lending their full energies to place it on a firm financial basis. General FRY was asked lately to name some of the crises the organization had passed through. He replied that its course had been a continuous crisis.

His presence and hopeful words at our meetings always brought with them a feeling of confidence, and his fertile resources have tided us over our difficulties to the present healthful condition of membership, library, publications, museum, and corps of correspondents.

The Council takes this opportunity of expressing its hope that improved health may, for years to come, enable General FRY to lend the Military Service Institution a measure of that active aid, unwearying effort, and tenacity of purpose, to which it has owed so much of its success in the past.

## II.

At a General Meeting of the Military Service Institution held at Governor's Island, N. Y., on the 14th day of January, 1891, the biennial election for President and six members of the Executive Council of the Institution took place.

The Ballots received were duly canvassed and the following officers were found to have been elected :

*President.*

Major-General JOHN M. SCHOFIELD, U. S. A.

*Members of Executive Council.*

(Term ending 1897.)

General GEORGE D. RUGGLES, Adj't-General's Dep't.

Colonel R. P. HUGHES, Insp.-General's Dep't.

General M. P. SMALL, Subsistence Dep't.

Major A. E. BATES, Pay Dep't.

Captain E. E. WOOD, 8th U. S. Cavalry.

Colonel JOHN HAMILTON, U. S. A., Retired.

The proposition to reduce the entrance fee from \$5 to \$3 did not receive the necessary two-thirds affirmative vote, and was therefore lost.

## III.

At a meeting of the Executive Council held on the 28th day of January, 1891, the following named officers were unanimously elected for the term of two years ending in January. 1893 :

*Vice-Presidents.*

Major-General O. O. HOWARD, U. S. A.

Bvt. Brig.-General T. F. RODENBOUGH, U. S. A.

*Secretary.*

Major W. L. HASKIN, 1st U. S. Artillery.

*Treasurer.*

1st Lieut. J. C. BUSH, 5th U. S. Artillery.

*Assistant Secretary and Vice-Treasurer.*

1st Lieut. GUY HOWARD, 12th U. S. Infantry, A. D. C.



## In Memoriam.

Extract from the Minutes of a Special Meeting of the Executive Council of THE MILITARY SERVICE INSTITUTION OF THE UNITED STATES, held at Governor's Island, N. Y. H., on Wednesday, February 18, 1891.

\* \* \* \* \*

The following Preamble and Resolutions were unanimously adopted :

**Whereas**, THE MILITARY SERVICE INSTITUTION having been deprived of its most illustrious member by the death, in the City of New York, February 14, 1891, of GENERAL

### William Tecumseh Sherman

It is therefore

**Resolved**, That the Members of this Institution join, heartily, with all classes of the American people in the universal and eloquent expression of admiration for General Sherman's grand achievements, simplicity of character and unswerving loyalty to the Flag ; and in the widespread sorrow at his loss,

**Resolved**, That we recall with mingled pride and affection, the many evidences of General Sherman's interest in our work ; particularly his advice, before the Institution, to the Army and the people "to mingle more in order that there may be perfect unity" ; and his earnest admonition—"I cannot help plead to my countrymen, at every opportunity, to cherish all that is manly and noble in the military profession, because Peace is enervating and no man is wise enough to foretell when soldiers may be in demand again."

**Resolved**, That the last preceding quotation be restored to its former place upon the first page of the JOURNAL ; that the Council chamber be draped in mourning for the period of six months ; and that a copy of these Resolutions, suitably engrossed and signed by every member of the Council, be transmitted to the family of the deceased.

ATTEST :

WILLIAM L. HASKIN,  
*Secretary.*

T. F. RODENBOUGH,  
*Vice-President and Chairman.*



## Prize Essay—1891.

I.—The following Resolution of Council is published for the information of all concerned :

*Resolved*, That a Prize of a Gold Medal of suitable value, together with a Certificate of Life Membership, be offered annually by THE MILITARY SERVICE INSTITUTION OF THE UNITED STATES for the best essay on a military topic of current interest ; the subject to be selected by the Executive Council and the Prize awarded under the following conditions :

1. Competition to be open to all persons eligible to membership.\*
2. Each competitor shall send three copies of his Essay in a sealed envelope to the Secretary *on or before October 1, 1891*. The Essay must be strictly anonymous, but the author shall adopt some *nom de plume* and sign the same to the Essay, followed by a figure corresponding with the number of pages of MS.; a sealed envelope bearing the *nom de plume* on the outside, and enclosing full name and address, should accompany the Essay. This envelope to be opened in the presence of the Council after the decision of the Board of Award has been received.
3. The prize shall be awarded upon the recommendation of a Board consisting of three suitable persons chosen by the Executive Council, who will be requested to designate *the Essay deemed worthy of the prize*; and also in their order of merit those deserving of honorable mention.
4. The successful Essay shall be published in the Journal of the Institution and the Essays deemed worthy of honorable mention, shall be read before the Institution, or published, at the discretion of the Council.
5. Essays must not exceed twenty thousand words, or fifty pages of the size and style of the JOURNAL (exclusive of tables).

II.—The Subject selected by the Council at a meeting held Jan. 14, 1891, for the Prize Essay of 1891, is

"THE TERRAIN IN ITS RELATIONS TO MILITARY  
OPERATIONS."

III.—The names of the members of the Board of Awards will be announced in the JOURNAL for May, 1891.

WM. L. HASKIN,

*Secretary.*

GOVERNOR'S ISLAND,  
February 2, 1891.

\* "All officers of the Army and Professors at the Military Academy shall be entitled to membership, *without ballot*, upon payment of the entrance fee. Ex-officers of the Regular Army of good standing and honorable record shall be eligible to full membership of the Institution *by ballot* of the Executive Council.

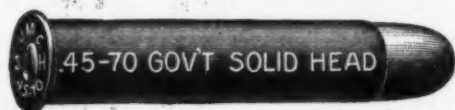
"Officers of the United States Navy or Marine Corps shall be entitled to membership of the Institution *without ballot*, upon payment of the entrance fee, but shall not be entitled to vote, nor be eligible to office.

"All persons not mentioned in the preceding sections, of honorable record and good standing, shall be eligible to Associate Membership *by a confirmative vote* of two-thirds of the members of the Executive Council present at any meeting, *provided*, however, that the number of these Associate Members shall be limited to two hundred. Associate Members shall be entitled to all the benefits of the Institution, including a share in its public discussions, but no Associate Member shall be entitled to vote or be eligible to office."





**MILITARY AMMUNITION**  
**FOR**  
**United States and Foreign**  
**Government Arms,**  
**Rifles, Gatling Guns, Revolvers, Etc.**



**SPORTING AND TARGET CARTRIDGES,**  
**PAPER SHELLS, WADS, Etc.,**  
**OF THE BEST QUALITY.**

---

**GOVERNMENT CONTRACTORS,**  
**The Union Metallic Cartridge Co.,**  
**BRIDGEPORT, CONN.**

**Office, 19 Maiden Lane, New York,**

**CABLE ADDRESS, HARTLEY, NEW YORK.**



# CONSTIPATION.

WHAT DO YOU PRESCRIBE FOR IT? Doubtless proper diet, exercise, good hygiene, laxatives, cathartics and alteratives as indicated.

CASCARA CORDIAL combines with carminatives the well-known tonic laxative virtues of Cascara Sagrada. No fact is more firmly established than that Cascara Sagrada will radically relieve chronic constipation. The cordial is free from bitterness, and agreeable to the most sensitive palate.

GLYCERIN SUPPOSITORIES are an efficient method of relieving constipation, and invaluable to those who object to fluid medicine or to pills. These suppositories afford certain relief in Hæmorrhoids.

SYRUP TRIFOLIUM COMP. is an efficient and agreeably tasting combination of valuable vegetable alteratives. If it be desired to prescribe a laxative and alterative, the following is a simple and excellent prescription:

R *Syr. Trifolium Comp.,*  
*Cascara Cordial, āā oz. iv.*

M. *Sig.—Tablespoonful three times a day.*

---

Descriptive literature of our products sent to physicians on request.

---

PARKE, DAVIS & CO.,  
DETROIT & NEW YORK.

o

r  
l

e  
a  
e

f  
o  
s

7  
c  
e

l



## Historical Sketches of the Army.

---

THE following named officers have volunteered, or have been designated to prepare Historical Sketches of their Corps or Regiments for publication in this JOURNAL.

<i>Adj. General's Dept.</i> .....	GEN. J. B. FRY.
<i>Medical Department</i> .....	SURGEON CHAS. SMART.
<i>*Pay Department</i> .....	MAJOR A. B. CAREY.
<i>Signal Corps</i> .....	LIEUT. WM. A. GLASSFORD.
<i>1st Cavalry</i> .....	LIEUT. R. P. P. WAINWRIGHT.
<i>2d Cavalry</i> .....	MAJOR A. E. BATES and CAPT. E. J. McCLEARNAND.
<i>3d Cavalry</i> .....	LIEUT. THOS. B. DUGAN.
<i>5th Cavalry</i> .....	LIEUT. EBEN SWIFT.
<i>6th Cavalry</i> .....	LIEUT. F. G. HODGSON.
<i>7th Cavalry</i> .....	LIEUT. E. A. GARLINGTON.
<i>*8th Cavalry</i> .....	LIEUT. C. M. O'CONNOR.
<i>10th Cavalry</i> .....	LIEUT. JOHN BIGELOW, JR.
<i>1st Artillery</i> .....	COLONEL L. L. LANGDON.
<i>2d Artillery</i> .....	LIEUT. W. A. SIMPSON.
<i>*4th Artillery</i> .....	LIEUT. A. B. DYER.
<i>2d Infantry</i> .....	GEN. FRANK WHEATON.
<i>3d Infantry</i> .....	CAPT. WM. GERLACH.
<i>4th Infantry</i> .....	LIEUT. JAS. A. LEYDEN.
<i>6th Infantry</i> .....	LIEUT. CHAS. BYRNE.
<i>7th Infantry</i> .....	LIEUT. A. B. JOHNSON.
<i>8th Infantry</i> .....	LIEUT. W. P. RICHARDSON.
<i>9th Infantry</i> .....	LIEUT. E. B. ROBERTSON.
<i>10th Infantry</i> .....	LIEUT. S. Y. SEYBURN.
<i>*11th Infantry</i> .....	CAPT. J. H. PATTERSON and LIEUT. R. C. J. IRVINE.

\*Published in JOURNAL.

<i>12th Infantry</i> .....	LIEUT. CHAS. W. ABBOT, JR.
<i>13th Infantry</i> ....	LIEUT. M. J. O'BRIEN.
* <i>14th Infantry</i> .....	COLONEL T. M. ANDERSON.
<i>15th Infantry</i> .....	LIEUTS. G. K. MCGUNNEGLE and G. A. CORNISH.
<i>16th Infantry</i> .....	CAPT. WM. V. RICHARDS.
<i>17th Infantry</i> .....	LIEUT. GEORGE RUHLEN.
<i>18th Infantry</i> .....	COLONEL H. M. LAZELLE.
<i>19th Infantry</i> .....	LIEUT. C. C. HEWITT.
<i>20th Infantry</i> .....	CAPT. J. N. COE.
<i>22d Infantry</i> .....	CAPT. O. M. SMITH, C. S.
<i>24th Infantry</i> .....	LIEUT. H. W. HOVEY.

---

\* Published in JOURNAL.

## ELEVENTH REGIMENT OF INFANTRY.

### I.

By CAPT. J. H. PATTERSON, U. S. A.,

#### TWENTIETH INFANTRY.

**I** PURPOSE in a brief and concise way to write something of the Old Eleventh Infantry. There have been several infantry regiments of that numerical designation in our Army. What I have to tell will refer to the first, in numerical order, of the three battalion regiments added to the Army in 1861, to the time when, by Act of Congress, dated July 28, 1866, the three battalion regiments were discontinued.

I have no intention of writing a formal history. I have not the necessary data even if I had the inclination. I claim the privilege of wandering here and there over the broad field of my experience as a subaltern officer of the Old Eleventh, and noting such historical, statistical, and anecdotal items, as I may remember after all these years.

On the 14th day of May, 1861, President Lincoln issued an executive order, directing an increase of the regimental organizations of the Regular Army. Nine infantry regiments, of three battalions of eight companies each, were of the increase authorized. In G. O. No. 33, A. G. O., series of 1861, can be found the names of the officers appointed to the new regiments, the greater number from civil life. The order directing the formation of the 11th Infantry, designated Fort Independence, Boston Harbor, Mass., as regimental headquarters, where all appointees were directed to report, either in person or by letter, to the regimental commander. Fort Independence remained our headquarters during the War.

Edmund Schriver of New York, formerly an officer of the 3d Artillery, accepted the lieutenant-colonelcy of the regiment and had charge of its organization, the colonel,—Brig-Gen. E. D. Keyes, U. S. Volunteers, appointed to the regiment from major 1st Artillery,—being on detached service with his volunteer command. The other field officers were Major Frederick Steele, appointed from captain 2d Infantry; Major Delancy Floyd-Jones, appointed from captain 4th Infantry; and Major Jonathan W. Gordon, of Indiana, an appointment from civil life.

Colonel Schriver—among the first of the regiment to arrive in Boston—found Fort Independence occupied by a regiment of Massachusetts volunteers, the 13th, I think. After a vexatious delay the 13th got off for the front, when the officers of the Eleventh, who were quite as anxious as the colonel to get into quarters, were ordered to report for duty at our official station. Colonel Schriver selected for his regimental staff 1st Lieut. Guido N. Lieber to be adjutant, and 1st Lieut. Robert Burnett Smith to be quarter-

master. Colonel Lieber is well known to the Army as our present assistant judge advocate general. "Bob" Smith resigned in 1865. I think that several of the younger officers were reluctant to leave the attractions and delights of Boston for the not very cheerful prospect of what so isolated a locality as Fort Independence promised in exchange. Others were prepared for the most Spartan experiences. There was one condition common to all. I do not remember that, other than Colonel Schriver and Major Floyd-Jones, there was an officer in the command who knew anything of practical value of the service. Several had campaigned a little in the three months service. I do not remember that they claimed to be any more of the old soldier than the rest of us, their experiences, as I heard them related, having been quite as full of amusement as of instruction. The only enlisted man at the fort when we took station there, was Ordnance Sergeant Parr, a veteran of great dignity and most impressive manner. I think he doubted the wisdom of commissioning so many inexperienced young men in the Army. The sergeant had served in the Mexican War and Utah Expedition. I do not remember when he first entered the service. He had grown gray in it. His reminiscences were numerous and lengthy, and, though colored somewhat with imagination, were very interesting, and found willing and attentive listeners. His manner toward the younger officers was encouraging, approaching frequently to the paternal. I know very little of his subsequent career. I have the impression that he was appointed lieutenant-colonel or major of a Massachusetts cavalry regiment, but, annoyed and irritated by the absence of that formal way of doing things to which he had been for so many years accustomed, resigned his volunteer commission in disgust. Sergeant Parr represented a type of the old soldier, difficult if not impossible to find in these degenerate days.

Professional work began at once, Colonel Schriver's first order directing recitations in tactics and the Army regulations. There was not an enlisted man present in the regiment at this time. The officers were drilled in the school of the squad with and without arms. Captain Chipman was our drill master. Major Floyd-Jones joined soon after we went down to the fort and partially relieved Colonel Schriver of what must often have been the irksome task of hearing our every week-day recitations. I remember that the War Department issued to each officer the Ordnance Manual, Wayne's Sword Exercise, the Army Regulations, and Scott's Tactics. Scott was soon changed for Hardie, the latter for U. S. Infantry Tactics, a change of title only, Hardie having gone over to the Confederacy. I want to remark in this place that we always found Colonel Schriver a patient, interested and considerate instructor. All who had the good fortune to commence their military service with the aid of his advice and direction, will remember the colonel with feelings of affectionate regard as a commanding officer who, to a perfect and entire familiarity with the duties and technicalities of his office and profession, added the graces and accomplishments of a courteous gentleman.

Sergeants Bentzoni, Hagan, Kennington and Fitzmorris were transferred from the Recruiting Depot at Governor's Island, and appointed 1st sergeants of companies as they were organized. They were commissioned



in the regiment after a time, Captain Fitzmorris, killed at the battle of Gaines' Mill, carrying the regimental color.

By October six companies had been organized and assigned to the First Battalion. About the 10th of that month the battalion (with regimental headquarters, temporarily) was ordered to Perryville, Maryland, opposite Havre de Grace, where, joined by the 14th Infantry from Fort Trumbull, Conn., we remained during the winter, guarding mules and wagons collected at Perryville to make up a wagon train for the Army of the Potomac. Picket guards at the ferry landings, and guards on the boats, added to the duties the men were called upon to perform. The battalion was encamped on the bank of the river near the ferry, and in tents until late in January, when it had a welcome change to rude but very comfortable temporary barracks. Colonel Schriver commanded the post, with Lieutenant Lieber as post adjutant. Captain, now colonel, Sawtelle, of the Quartermaster's Department, was depot quartermaster. Major Delancy Floyd-Jones commanded the battalion, with 1st Lieut. Charles A. Hartwell as battalion adjutant. I wish I could remember the name of the post surgeon, a very attentive and competent physician. I passed many pleasant hours in his quarters. It is somewhat strange that while I remember so much of what occurred at Perryville, by no association of events or individuals can I recall the doctor's name.

The company officers present in our first camp were Captains Russell, Chipman, Lowe, Ames, Lawrence and Elder; Lieuts. J. S. Fletcher, Bates, Pleasants, Head, Ingham, Higbee, Patterson, Gray, Evans and Brownell. Sergeants William Fletcher, of the 8th Infantry, and Bentzoni and Huntington, of the 11th, were appointed to and joined the regiment before the end of the year. I think I have mentioned all who were for duty with the battalion at that time, and, with the exception of Elder and Bentzoni, they embarked with the battalion for the Peninsula.

In March, 1862, the 11th Infantry and the 14th were ordered to Washington, where they joined Sykes' Division of Regulars. Colonel Schriver left the regiment at this time to join General McDowell as his chief of staff. The battalion marched with the division in the reconnoissance to Manassas, returned with it to Alexandria, and went into camp near the Theological Seminary. It embarked for the Peninsula, sharing the transport with the 4th Infantry, and, in the operations before Yorktown, its camp was in the division camp called Winfield Scott, near General McClellan's headquarters.

I intend to refer as little as possible to the division and brigade to which my regiment was attached during the War, and will therefore, before proceeding farther, give them as briefly as possible for the whole period.

Sykes' division was an independent command, reporting direct to General McClellan's headquarters, until the organization of the 5th Corps, when it joined that corps as its Second Division.

In the Peninsular campaign the division was made up of two Regular and one volunteer brigades. The 3d, 4th, 12th and 14th regiments of infantry were in the First Brigade; the 2d, 6th, 7th, 10th, 11th and 17th regiments of infantry in the Second; the 1st Connecticut Heavy Artillery, the 5th and

10th New York Volunteers in the Third Brigade. A company of the 1st Infantry served with Sykes' Division in the Peninsula campaign. I have forgotten to which regiment it was attached. Lieut.-Col. R. C. Buchanan, 4th Infantry, commanded the First, Lieut.-Col. William Chapman, the Second, and Col. G. K. Warren, 5th New York Volunteers, the Third Brigade. This division formation—referring to regiments—(the company of the 1st Infantry was detached from the division, I think, at Harrison's Landing) continued until the fall of 1862, when the 1st Connecticut Artillery and 10th New York Volunteers were detached from, and the 140th and the 146th New York Volunteers attached to the Third Brigade.

The 5th New York, a two years' regiment, was mustered out in May, 1863, by expiration of term of service. It was reorganized by Col. Cleveland Winslow, a very gallant officer, and returned to the field and to the Third Brigade, where it maintained the high reputation its first organization had made, as one of the most distinguished volunteer regiments in the Army of the Potomac. In the reorganization of the Army of the Potomac, preparatory to the campaign of 1864, the three brigades of Sykes' old division were consolidated into one, and assigned to the First—Griffin's—Division of the 5th Corps. The service of the Regular infantry as a separate command in the Army of the Potomac came to an end with this consolidation. The assignment to Griffin's Division continued until after the battle of the Wilderness, when the brigade was returned to the Second Division as its Second Brigade, and General Ayres to his former Second Division command.

Gen. George Sykes (major 14th Infantry) organized the division at Washington, D. C., in March, 1862, and continued to command it until, at Frederick, Maryland, in June, 1863, he succeeded General Meade in command of the 5th Corps. Gen. R. B. Ayres (captain 5th Artillery) who came to the First Brigade just before the battle of Chancellorsville, succeeded General Sykes in command of the division and, excepting the short time his division served as a brigade in Griffin's division, continued to command it to the end of the War. This recital, though somewhat lengthy and a departure from the line of my narrative, will, I hope, be interesting. It may serve a useful purpose.

Upon the evacuation of Yorktown, the regiment marched via Williamsburg, Cumberland, the White House, and Tunstall's Station, to near the Chickahominy, and went into camp on the Mechanicsville road near Gaines' Mill, Camp Lovell it was called. It took part in the movement to Hanover Court House, and did its share of picket and fatigue duty on the Chickahominy. The only thing that disturbed the even tenor of our camp life after the Hanover Court House affair, was Stuart's raid. We were hurried out of camp about sundown, marched off rapidly for a few miles, and then marched back. I do not know if we were expected to catch Stuart's raiders, and can explain the movement only as Artemus Ward did a similarly futile effort. It may have been "Strategy, my boy."

At the battle of Gaines' Mill the battalion was posted to support Martin's Mass. Battery. Lieutenant Hartwell, battalion adjutant, was severely wounded in this action. At the battle of Malvern Hill, the 11th Infantry

and 5th N. Y. Vols. were detached under Col. G. K. Warren, and posted in the bottom land on the extreme left of our army. The regiment followed the army to Harrison's Landing and remained in camp there until about August 14th, when it marched with the division via Charles City Court House and Williamsburg to Newport News, *en route* to join Pope's army north of the Rappahannock. It landed from transport at Acquia Creek, remained for a few days at Fredericksburg, and appeared in due time upon the battle-field of the Second Bull Run, where it was engaged. The regiment was present at the battle of Antietam, crossed the river in the reconnoissance to Sharpsburg, and was engaged on the skirmish line. It accompanied the division back to the Rappahannock, and went into camp near Falmouth, Va. It crossed the river and was engaged at the battle of Fredericksburg. Captain Lawrence was severely wounded in this action. It shared the fatigues and discomforts of the "Mud March," and wintered in the division camp near Potomac Creek. At the battle of Chancellorsville (May 1st) the regiment was again on the skirmish line, at first supporting the 17th Infantry, and then deployed on its right in the advance of Sykes' Division in the direction of Fredericksburg. The skirmish line went forward for a mile or more without encountering very much opposition, or observing any indication that it would encounter any, when, for some reason thought to be good, I suppose, by whoever ordered it, the skirmish line was withdrawn, and the division returned to the camp it left in the morning.

On the evening of the disaster to a portion of the Eleventh Corps, the regiment, about sunset, was ordered out upon the road leading to the river, to aid in restoring order, and to assist in stopping the stream of stragglers making for the bridge. I shall not attempt a description of how a large body of men appeared when under the influence of the unaccountable demoralization. The scene was one of confusion and excitement truly thrilling, and though order was soon restored, suggested the thought of what a chaotic condition of things would have been likely to follow, had the panic extended beyond the limits to which it was fortunately confined.

In the battle of the next morning the regiment was in line to the right of the troops engaged. It formed part of the rear-guard when the army crossed to the north bank of the river and, waiting to see the ponton bridge taken up, then returned to its winter camp near Falmouth. The regiment accompanied the division to Gettysburg. The division, early in the afternoon of July 1st, went into camp near York, Pa., to prepare muster and pay rolls. About sunset it was hurriedly put *en route* for Gettysburg, had a very exhausting night march and, passing in the early morning to the rear of the battle-field of the day before, halted on the pike in rear of the Round Top for rest and breakfast. Later in the day the division was put in position covering the Round Top, the Regular brigades posted out well to the front. The enemy soon appeared in great force, threatening the destruction of the Regular infantry by an enfilade. The gallantry of Col. Hannibal Day, 6th Infantry, commanding the 1st,—and Col. Sidney Burbank, 2d Infantry, commanding the 2d Brigade,—their coolness and skill in withdrawing their commands from the terrible fire to which they were exposed

without support, made the veteran officers named conspicuous figures on that part of the field. The following extracts, which I cannot resist quoting, from Colonel Fox's "Regimental Losses in the Civil War," will be interesting as showing what the Regular infantry did and suffered in this great battle:

"At Gettysburg the two Regular brigades, under Colonels Day and Burbank, again displayed that marked efficiency which, at Gaines' Mill and on other fields, had made them famous, their thinned ranks being again depleted under the terrible fire which they encountered."

And again:

"At Gettysburg the two Regular brigades included ten regiments, but they contained only fifty-seven small companies. Out of 1985 present, they lost 829 in killed, wounded and missing, and in Burbank's Brigade, out of 80 officers present, 40 were killed or wounded."

The loss of the 11th Infantry in officers was the largest it,—or any other Regular regiment, so far as I can learn,—suffered in any one battle of the War. Captain Barri and Lieutenants Kenaston, Elder, Rochford and Barber were killed; and Captain Goodhue and Lieutenant Harbach wounded. The regiment marched with the division back to the Rappahannock.

In the fall of 1863 the Regular infantry, with other commands from the Army of the Potomac, were sent to New York City to preserve order during the next draft. The 11th Infantry encamped on the East River, across the street and to the north of Jones' Wood garden. When the purpose for which the troops were sent to New York had been accomplished, they were ordered back to the front.

A great deal of marching and counter-marching is all that I remember as occurring to the time of the assault and capture by the 6th Corps of the rebel redoubts covering the railroad bridge crossing the Rappahannock. On that occasion the 11th Infantry was on the skirmish line to the left of the attack. The regiment took part in the movement to Mine Run, returned to the vicinity of Bealton Station, and went into what we thought would be our winter quarters. Remaining in that locality for a short time, it moved to near Nokesville. We had completed the hutting of the command when, about Christmas, the regiment was ordered to Alexandria, Va., for duty as train guards to Brandy Station. The end of the year left the regiment in camp near the cemetery at Alexandria, performing the duty last mentioned.

About May 1st, 1864, the regiment moved to Brandy Station, where the division, cantoned along the railroad during the winter, was assembling to take part in the campaign of 1864. The division crossed the Rapidan at Ely's Ford and bivouacked on the night of May 4th well out on the Orange Court House road. In the engagement of the next day the regiment was on the skirmish line. Lieutenants Pleasants and Staples were killed in this action. The regiment was again under fire May 8th and 12th. Lieutenant Pratt was killed in the action of May 8th. The regiment crossed the North Anna River near Jericho Ford, and was engaged on that day, June 2d, at Bethesda Church. Under cover of a heavy growth of timber the enemy succeeded in turning the right of the 5th Corps, capturing Lieutenants

Hunington and Nealy, and a number of the enlisted men of Company F, 1st Battalion, our right-flank company. The enemy came upon us from our right and rear. I did not stop to inquire what the rebels thought about it, but we were very much surprised indeed.

The regiment, still tramping with the division, crossed the Chickahominy at Long Bridge, moved after some delay to the James River, and crossed at Wilcox's Landing, was retained on the south bank, and made the most exhausting night march it ever experienced. It arrived in front of the works covering Petersburg on the morning of June 17th, and was in support of the disastrous assault of the 9th Corps. On the 18th the division moved to the left, to near the Weldon Railroad cut, and took part in an effective and bloody attack upon the rebel defenses on that front. The 11th Infantry suffered severely from the fire of a battery located in a redoubt fronting the line of the advance. Lieut.-Col. E. S. Otis, 140th New York Volunteers, commanded our brigade in this action. After remaining for several weeks in the trenches the regiment moved to the more comfortable locality of a camp to the rear in the timber, where a man could hold up his head without the certainty of a sharp-shooter making a target of it. I can imagine no more utterly wearing, forlorn, and dispiriting situation than that of hiding, day after day, behind a breast-high parapet, waiting for your turn to come to be knocked on the head. Looking across to the rebel works they appeared deserted, until some movement or demonstration in our line called them to arms, when their parapet would glisten with bayonets, suggestive of the quills upon the fretful porcupine. The regiment was engaged at the battle of the Weldon R. R. and the battle of the Chapel House. Lieut.-Col. Otis, our brigade commander, was very severely wounded in the last-named action. The regiment took part in the movement to Hatcher's Run, returned to a camp near the Yellow Tavern, and on the 1st day of November, 1864, the Regular infantry serving with the Army of the Potomac, were ordered out of the field. The casualties incident to field service, with the difficulty experienced in obtaining recruits for the Regular Army,—state and county bounties attracting recruits to the volunteer service,—had reduced the several regiments to an aggregate enlisted of little more than the maximum allowed a company,—several of the older regiments fell below it.

This separation was final. I do not think that I exaggerate when I remark that, in its service with the Army of the Potomac, the Regular infantry bore its part honorably and well; that the high standard for efficiency expected of it was always maintained when put to the crucial test of battle. Too few in numbers to claim recognition as a great element of strength to that army, the record it made from Yorktown to the Chapel House is an assurance of what a notable influence it would have exercised, had its enlisted strength been sufficient to permit its organization as an army corps. The regiment went from the field to Hunt Barracks, in rear of Fort Hamilton, N. Y. Harbor, remained there until November 18th, when, with the 8th Infantry, it embarked for Baltimore, Md. Remained at Baltimore until December 5th, when it was sent to Annapolis, Md., for duty at Camp Parole. Remained at Camp Parole until January 26, 1865, when it em-

barked for City Point, Va. Arriving at City Point, it went into camp near General Grant's headquarters, where it remained until March 8th, when it moved to Park Station, and from that time to the end did duty as part of the provost guard at headquarters Army of the Potomac.

After the surrender, the 11th Infantry with other Regular troops, was sent to Richmond, Va., where it arrived May 3d. It did provost duty in Richmond until the civil government of the city was organized, and at Libby Prison until its use was discontinued.

During the summer and fall of 1865 the twenty-four companies of the regiment were organized.

In the summer of 1866, the regiment suffered a great mortality from cholera. I think the order reorganizing the Army was received in September, and soon afterward the 29th Infantry (3d Battalion) was ordered to Lynchburg, Va. In January, 1866, the 20th Infantry (2d Battalion) was ordered to New Orleans, La., leaving the 1st Battalion heir to the colors and records of the 11th Infantry of,—what we were proud to have been,—Sykes' Division of the 5th Army Corps.

The field officers of the old Eleventh were Colonels E. D. Keyes and W. S. Ketchum; Lieut.-Colonels Edmund Schriver, John T. Sprague and R. S. Granger; Majors Frederick Steele, Delancy Floyd-Jones, Jonathan W. Gordon, Daniel Huston, Jr., T. H. Neill, and Lyman Bissell. I do not remember all who were regimental and battalion staff officers. Those I do remember are Lieuts. G. N. Lieber, G. E. Head and F. A. Field, regimental adjutants; R. B. Smith and Oscar Hagan, regimental quartermasters. Lieuts. C. A. Hartwell and J. C. Bates were adjutants of the 1st Battalion in the field.

At the time of the reorganization Lieut. W. H. Clapp was adjutant of the 1st Battalion, and Lieut. Wm. Fletcher quartermaster. Lieut. A. A. Harbach was adjutant of the 2d Battalion; Lieut. John A. Coe, quartermaster. I have forgotten who was adjutant of the 3d Battalion; Lieut. Henry Wagner was quartermaster. Lieut. Charles Bentzoni had been quartermaster of the 3d Battalion. Lieut. Irvin B. Wright was at one time a battalion staff officer. Lieut. J. P. Pratt was adjutant of the 2d Battalion when killed in front of Spottsylvania Court House. Major Delancy Floyd-Jones commanded the battalion at Gaines' Mill, Malvern Hill, 2d Bull Run, Antietam, Fredericksburg, Chancellorsville and Gettysburg; Major Gordon at Mine Run; Captain Francis M. Cooley at the Wilderness; Spottsylvania Court House, North Anna River, and the assault of June 18th; Captain W. G. Edgerton at the Weldon R. R. and Chapel House; Captain A. E. Littimer at the time of the surrender.

In closing my informal narrative I desire to mention three officers of my old regiment. Two of them—Captains Russell and Barri—were great favorites, the third was my particular and intimate friend. We messed together and were attached to the same company for the 1864 campaign. I have never known a better or more companionable fellow than Wright Staples, whose young life went out at the battle of the Wilderness on the skirmish line, doing his duty in his manly way.

Captain Thomas O. Barri, who died in the division field hospital at



Gettysburg, was a loss to the regiment that affected both rank and file deeply. Of a happy temperament,—bright, witty and clever,—he possessed social qualities joined to a correct, courageous and honorable conduct, that made him loved as a comrade, and respected as an officer and gentleman. A cultivated musician, he sang delightfully. His camp fire was always the chief attraction of our bivouac. Among the first to fall, he could not be removed from the field until the enemy had been driven back. He died soon after being brought in.

I think all who served near Captain Charles S. Russell, will agree with me that he was an exceptionally able commander of troops in action. I never knew him, in the many times his capacity was put to the test, to fail in the soldierly qualities which made him so distinguished. In every action of the regiment from Gaines' Mill to Gettysburg, he was the acting field officer, and always made his presence felt. He was appointed, at the request of Governor Morton of Indiana, colonel of the 8th U. S. Colored Troops, and in the Campaign of 1864, commanded a brigade in the 9th and 25th Corps. His brigade was selected to accompany General Sheridan's Army to Texas. The death of Captain, Brevet Colonel, Russell at Cincinnati, Ohio, in November, 1866, removed from the Army one of its most distinguished officers of his grade. He was of tried courage, and admitted capability for high command.

I have reached the limit of space allowed me, and conclude my labor of love with the regret that I have not been able to do more ample justice to so deserving a subject.

## II.

By LIEUTENANT R. J. C. IRVINE, U. S. A.,

### ELEVENTH INFANTRY.

In 1869 the present Eleventh Infantry was formed by the consolidation of the 24th and 29th Regiments of Infantry. The 24th Infantry was consolidated into five companies, and the 29th also into five companies, and by General Orders No. 80, dated 5th Military District, April 25, 1869, the consolidation of the two regiments into the Eleventh Infantry was completed.

Colonel Alvan C. Gillem was the first colonel of the reorganized Eleventh Infantry, but in December, 1870, he was transferred to the 1st Cavalry.

He was succeeded by Colonel William H. Wood, who assumed command of the regiment in February, 1871, and remained its colonel until he was retired at his own request in June, 1882.

The retirement of Colonel Wood promoted Lieut.-Colonel Richard I. Dodge, of the 23d Infantry, to the Eleventh, and he has remained its colonel to the present time.

The history of the present 11th Infantry is necessarily brief. From its formation in 1869 up to 1876 it was stationed in the Department of Texas, and the companies took part at different times in the scouts and expeditions against hostile Indians, and performed escort and other field duties.



In August and September, 1876, the regiment was sent from the Department of Texas to the Department of Dakota for field service in connection with the Indian War in that Territory and in Montana. The larger part of the regiment (seven companies) was sent to the Cheyenne River agency, Dakota, where these troops were huddled for shelter during the winter, and three companies were stationed at Standing Rock agency, Dakota. In 1877 the regiment was transferred from the Department of Texas to the Department of Dakota.

In April and May, 1877, three companies (C, F and G) were moved from Cheyenne Agency, and three companies (A, B and H) from Standing Rock Agency to the Little Big Horn, Montana, under the command of Lieut.-Colonel G. P. Buell, 11th Infantry, where they constructed the post of Fort Custer.

During the years 1877 and 1878 the different companies of the regiment were employed as occasion demanded on expeditions and scouts against hostile Indians.

On January 2d, 1881, Company F, 11th Infantry, was engaged in an attack upon hostile Indians, under Sitting Bull, near Poplar Creek Agency, as part of the command of Major G. Ilges, 5th Infantry.

The infantry battalion, composed of Company F, 11th Infantry, and detachments of Companies A, B and E, 7th Infantry, and one three-inch gun, all under command of Captain O. B. Read, 11th Infantry, left the agency at 11.30 A. M., marched three miles, crossed the Missouri River, took and held a point of timber commanding the lower village of the Indians until joined by Major Ilges with the main command (5 companies 5th Infantry, 1 company 7th Cavalry and an artillery detachment). The attack commenced at once, and after an engagement of about one hour, during which Company F was engaged in firing upon and turning back Indians attempting to escape from the artillery fire, resulted in the capturing of three Indian villages and their destruction. 324 prisoners were taken, with about 300 ponies and a large number of arms. No casualties among the troops. Loss of enemy in killed and wounded not known.

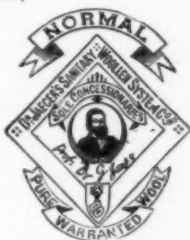
In July, 1887, the regiment left the Department of Dakota for service in the Division of the Atlantic, where it is now stationed in the Lake Region, with headquarters at Madison Barracks, N. Y.

# DR. JAEGER'S Sanitary Woolen System Co.,

HERMANN SCHAEFFER,  
President;

ERNEST BENDER,  
Vice-President.

NOTE OUR  
TRADE MARK  
CLOSELY!



BEWARE  
OF  
IMITATIONS!

## We ask attention to our Complete Assortment of **SANATORY UNDERWEAR,**

Graded to all Seasons, For Men, Women and Children.

These **Sanatory** garments are **guaranteed** to be **all wool** of the finest quality; they are made under **Dr. Jaeger's** supervision.

*Garments Made to Order, a Specialty.*

## Special attention is also called to the *Jaeger, Ventilated,* **SANATORY BOOTS AND SHOES.**

- A A—Perforated felt sole.
- B—Air duct.
- C—Air w. ll.
- D D—Steel spring.
- E E—Upper felt sole.
- F F—Lower felt sole.

*The only shoes that are strictly in keeping with popular styles, and, yet, combine all the conditions essential to a PERFECTLY healthful shoe.*



*They are made in conformity to the principles of Dr. Jaeger's "Sanitary Woolen System," and are, therefore, both curative and preventive of all the ailments of the feet.*

These Shoes are **Elegant, Comfortable and Durable**; indeed, **Strictly First-class** in every respect.

They can be repaired by any good shoemaker.

**THEY ARE RECOMMENDED BY PHYSICIANS. PRICES REASONABLE.**

Mail orders promptly attended to.

We solicit correspondence and inspection.

For **Catalogue** and **Circulars**—free, by mail—send to

**Dr. Jaeger's Sanitary Woolen System Company,**  
**827 AND 829 BROADWAY, NEW YORK.**

BRANCH HOUSES:—153 Broadway, New York, 504 Fulton Street, Brooklyn,  
N. Y.; 1104 Chestnut St., Philadelphia, Pa.

## HANNIBAL.

A History of the Art of War among the Carthaginians and Romans down to the Battle of Pydna, 168 B.C., with a detailed account of the Second Punic War. With 227 charts, maps, plans of battles and tactical manœuvres, cuts of armor, weapons and uniforms. Large 8vo, pp xviii, 682, \$5.00.

By THEODORE AYRAULT DODGE, U. S. Army.

This is the second volume of the set, intended to cover the entire history of the Art of War, the others being Alexander, Cæsar, Gustavus Adolphus, Frederick and Napoleon. The succeeding volumes are expected to appear at annual intervals. Each volume is, however, a separate and independent work.

### BY THE SAME AUTHOR.

**The Campaign of Chancellorsville**, with 4 large maps, 8vo, \$3.00.

"It is not easy to say what part of this book is best, for it is all good."—*The Nation* (N.Y.).

**A Bird's-Eye View of Our Civil War**, with 4 large maps and 41 battle charts, 8vo, \$3.00.

"A clearer, more vivid view, a more accurate outline, than any other available record."—*Saturday Review* (London).

**Patroclus and Penelope**; A Chat in the Saddle, with 14 phototypes, 8vo, \$3.00; with 14 woodcuts from the instantaneous photographs, crown 8vo, \$1.25.

"The chapters on the training of horse and rider are full of sound information, clearly stated, and practical to the last degree."—*The Military Service Institution Journal*.

**Great Captains**, with 21 maps and battle charts, 8vo, \$2.00.

"The author gives concise statements and diagrams. Instead of long drawn commentaries, he interjects pithy remarks and criticisms, which at times approach the apothegmatic."—*U. S. Service Magazine*.

**Alexander**, with 237 charts, maps and cuts. Large 8vo, \$5.00.

"It is a goodly book; well written; well printed; well illustrated; well indexed and generally well gotten-up. It reads like a romance and lives in the memory like a fairy-tale."—*The Military Service Institution Journal*.

For sale by all booksellers. Sent by mail, prepaid, on receipt of price by the publishers,

**HOUGHTON, MIFFLIN & CO.,**

4 Park St., Boston; 11 East 17th St., New York.

---

## SPOONER'S MILITARY LIBRARY.

---

A reprint of the best foreign military books, in uniform volumes, 8vo, paper covers, clear type, excellent paper, each warranted to be an accurate reprint from the best English edition.

**No. 1. BOGUSLAWSKI'S "TACTICAL DEDUCTIONS FROM THE WAR OF 1870-71,"** is now ready, and will be followed quarterly by similar books, including Von Arnim's "Extracts from an Infantry Captain's Journal," Hohenlohe's "Letters on Infantry," "Letters on Artillery," "Letters on Cavalry," Trench's "Cavalry in Modern War," Von der Goltz's "The Nation in Arms," Chesney's "Waterloo Lectures," and many other works of recognized merit by English, French, German and Russian military writers. *Price, per volume, one dollar.* Each volume will be sent postpaid on receipt of the price.

**GEO. A. SPOONER, Publisher,**

**Leavenworth, Kan.**

**E. C. HAZARD & CO.,**  
*Hudson & North Moore Sts., New York,*  
 MANUFACTURERS AND PROPRIETORS OF THE FOLLOWING WELL-KNOWN BRANDS OF  
**CIGARS:**

ORANGE GROVE,  
 LA RECEPCION,  
 EL MATADOR,  
 LA PERICHOLE,  
 REINA DEL LAGO,  
 LA CRIADA,  
 KING,  
 LA GRANDIOSA,  
 LEONORA,  
 TIT WILLOW,  
 EL FLORETTE,  
 ALPINA,  
 CHIC,



REGINA ESPANA,  
 BOUQUET PERFECTOS,  
 ROSA DEL ORIENTE,  
 BELLE DE REIMS,  
 FLOR DE VIOLETA,  
 LITTLE SILVER,  
 CALCUTTA CHE-ROOTS,  
 LAST SENSATION,  
 LA LINDA DE CAYO HUESO,  
 LAS ANTILLAS,  
 ROUND HEADS,  
 PLUMB BEAUTE,  
 AMERO.

SOLE PROPRIETORS OF ORANGE GROVE CIGAR FACTORY,  
 NO. 65 COLLECTION DISTRICT, KEY WEST, FLORIDA.

**OUR METHODS**  
**MOSS TYPE**  
**MOSS PROCESS**  
**PHOTO ENGRAVING**  
**AND ZINC ETCHING**

**MOSS ENGRAVING CO.**  
 535  
 PEARL ST. & ELM ST.  
 NEW YORK.

SEND STAMP  
 For ILLUSTRATED CIRCULAR

Please send stamp for our New General Circular E. E.  
 We make Relief Engravings directly from photographs, and have facilities to print them in a first-class manner.

We have illustrated many important works for the Government—the Greely Expedition Report, for instance. Very nearly all of the engravings appearing in the *Illustrated American* are made by us, as well as those in the *Journal of the American Society of Civil Engineers*, and many similar works.

The Standard of Excellence  
**KINGSFORD'S**



**STARCH.**

Kingsford's Oswego CORN STARCH for Puddings,  
 Custards, Blanc-Mange, etc.

THE PERFECTION OF QUALITY.

**WILL PLEASE YOU EVERY TIME !**

ALWAYS ASK YOUR GROCER FOR THESE GOODS.

Established 1864.

→%**CALIFORNIA WINES**%←

White and Red Wines from finest French varieties of grapes MATURED  
 IN BOTTLE and guaranteed superior to anything before  
 offered from California.

Send for Price List and order an assorted case for trial.

**TYSEN & TOTTEN, 24 Dey St., New York.**

For sale also by Hegeman & Co., 196 Broadway.

The MERRITT Prints from clear  
 METAL type equal to the Hundred  
 Dollar Machines. Has no Ribbon to  
 Wear Out, Smut the Fingers or Paper.  
 Can both DUPLICATE and MANIFOLD.  
 This no other low-priced Typewriter  
 can do. No Rubber Type Machines  
 can compete with it.

# THE MERRITT TYPEWRITER.

This is exact copy of The "MERRITT'S" work.  
 It is equal to that of any High Priced Type-  
 writer. Relieves fatigue from steady use of  
 pen. Improves spelling and punctuation. Inter-  
 ests and instructs children. The entire corres-  
 pondence of a business house can be done with  
 it. Learned in a half hour from directions.  
 Prints capitals, small letters, figures and  
 characters,--78 in all. Price \$15, complete.

**The MERRITT is an Unique, Useful and Beautiful Christmas,  
 New Year's or Birthday Present.**

In an **OAK** Case, specially selected from rich, rare and beautiful wood, Highly polished and  
 finished, with Dove-tailed corners, Gilt trimmings, handle and fastenings, Plush lined. **Sent to  
 any address on receipt of \$18.50.**

**LEATHERETTE** Case, Elegant finish, Satin lined, Nickel plated and highly polished  
 throughout, **on receipt of \$17.50.**

Write for Circulars, Voluntary Testimonials and sworn-to Speed Test of 60 words a minute.

*A Simple, Compact Machine, }  
 Within the Means of All. }*

**LYON MANUFACTURING CO.,**

**SENT IMMEDIATELY TO ANY  
 ADDRESS ON RECEIPT  
 OF PRICE, \$15.00.**

**59 FIFTH AVE., NEW YORK CITY,  
 SOLE AGENTS.**

*Mention this publication.*

WM. J. UNDERWOOD,

ESTABLISHED 1822.

H. O. UNDERWOOD,

**WM. UNDERWOOD & CO**  
MANUFACTURERS OF  
**CANNED GOODS,**  
*OFFICE, No. 52 FULTON STREET,*  
**BOSTON. MASS.,**

*FACTORIES at Boston, Mass., Cape Cod, Mass., Mt. Desert, Me.,  
Jonesport, Me., Nova Scotia, Can.*

Call attention to the following Canned Specialties, packed from the finest materials, and designed to fill the demand for delicacies for the table, lunches, &c.;

ORIGINAL DEVILED ENTREMETS

**Including Ham, Tongue, Turkey, Chicken and Lobster,**

**Also Clam Chowder, Lobsters, Soft Shelled**

**Clams. Mackerel, &c. &c.**

---

**PHOTOGRAPHIC CAMERAS,**  
**Lenses and Apparatus for Army and Navy.**

This line of goods formerly furnished by

**SCOVILL MANUFACTURING COMPANY,**  
(and now supplied by the Scovill & Adams Company, successors to the Photo. Department of Scovill Mfg. Company), is extensively employed by the various Government Departments in fitting out Expeditions, Explorations, Geographical and Coast Surveys, etc., and preference is invariably given to the  
**CAMERAS OF THE AMERICAN OPTICAL COMPANY**

which are of superior design and workmanship.

They make **DETECTIVE CAMERAS, CONCEALED CAMERAS** and **LANDSCAPE CAMERAS**, in varieties of styles, to which the Eastman Roll Holder is added when desired.

**DRY PLATES OF ALL THE LEADING MAKES,**

**"IVORY" AND FLEXIBLE FILMS, CHEMICALS,**

**AND PHOTOGRAPHIC REQUISITES OF ALL KINDS.**

SEND FOR SPECIMEN COPY OF "THE PHOTOGRAPHIC TIMES."

Catalogues, estimates and information cheerfully supplied on application.  
Correspondence solicited.

**THE SCOVILL & ADAMS COMPANY,**

SUCCESSORS TO PHOTO. DEPARTMENT OF

**SCOVILL MANUFACTURING COMPANY,**

**423 BROOME STREET, NEW YORK.**

W. IRVING ADAMS, Pres't.

H. LITTLEJOHN, Sect'y.





PICKED MEATS, LUNCH MEATS, BONELESS HAMS,  
ROLLED OX TONGUE, GAME, CURRIED FOWL,  
BONED TURKEY, BONED CHICKEN,  
STUFFED CHICKEN LIVERS, SOUPS, PLUM PUDDING,  
EXTRA QUALITY PEACHES AND PEARS, &c.

No solder used inside the Can. No acid  
ever used in soldering the Cans.

We make no pretension to cheap prices, but  
guarantee quality of every Can.

Sold by all first-class Grocers

RICHARDSON & ROBBINS, Deser. Delaware.

---

Gold Medal, Paris Exposition, 1889.

## THE BELGIAN LAMP.

*Unequalled for Lighting Power, Economy, Clean-  
liness and Durability.*



In presenting this Lamp to the American public we supply a long-felt want, which is, a Petroleum or Kerosene Lamp, which absolutely does not produce any unpleasant odor, while giving the maximum of light with the minimum amount of heat.

The United States Lighthouse department (after thorough test) pronounce it the best lamp they know.

---

**The American Belgian Lamp Co.**

31 BARCLAY STREET,  
NEW YORK.

Arnold, Constable & Co.  
SPRING DRESS COTTONS.

D. & J. ANDERSON'S  
**CELEBRATED · ZEPHYRS,**

Plaids, Stripes and Checks.

New Designs and Beautiful Colorings. Unequalled for Wear by any  
other Cotton Fabric.

**FRENCH PRINTED CAMBRICS,**  
Elegant Designs and Choice Colorings for Dresses and Shirts.

Anderson's Suiting and Shirting Cheviots.

Broadway and 19th Street, New York.

---

MURPHY, LEAVENS & CO.

MANUFACTURERS OF

**- BRUSHES -**

*No. 28 Exchange Street,*

T. E. MURPHY.

**BOSTON,**

DAN'L DURGIN.

U. S. A.

---

MANUFACTURE

**First-Class · Brushes · of · Every · Description**  
FOR ALL PURPOSES.

**OUR SHOE BRUSHES**

are in general use at all Posts of the U.S. Army and are

CONCEDED THE BEST.

ESTABLISHED 1857.

# WILBUR & HASTINGS, Manufacturing Stationers

PRINTERS, LITHOGRAPHERS,  
BLANK BOOK MANUFACTURERS,

No. 40 Fulton Street,  
NEW YORK.

LETTER BOOKS, MEMORANDUM BOOKS,  
POCKET BOOKS, ACCOUNT BOOKS,  
CARD CASES, INVOICE BOOKS,  
PEN KNIVES, AND SCRAP BOOKS,

A Complete Line of Office and Fancy Stationery.

DRIVING ROAD AND STATE MAPS IN GREAT VARIETY.

Publishers of Engineers' and Ships' Log Book, and First  
Sergeant's Roll Book.

## F. T. GOWDREY Co.

PRESERVERS OF

FOOD DELICACIES

FOR THE  
HOUSEHOLD  
AND CAMP.

SPICED  
FAMILY PICKLES.

CALL  
FOR  
COWDREY'S  
DEVILED  
HAM

PICKLED AND  
CANNED GOODS.

RICH, PURE FRUIT  
PRESERVES, JELLIES AND JAMS.

BOSTON, U. S. A.

# LIBBY, McNEILL & LIBBY,

(INCORPORATED)

Union Stock Yards, Chicago.

## PACKERS AND PRESERVERS OF MEATS.

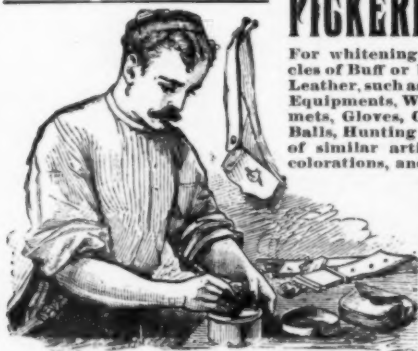
CANNED, COOKED, CORNED BEEF, SOUPS, OX-TONGUES,  
AND LUNCH TONGUES.

Oldest and best-known brand in the world. The goods stand unrivalled.  
"Semper idem," and are guaranteed in every particular.

READ THE FOLLOWING LIST OF TESTIMONIALS:

- Silver Medal, American Institute, New York, 1876.  
Bronze Medal, International Exhibition, Philadelphia, 1876.  
Gold Medal, Germany, "Massive," 1877  
Gold Medal, Exposition Universelle Internationals de Paris, 1878.  
Silver Medal, Austria, 1879.  
Gold Medal, Royal Agricultural Society, London, Eng., 1879.  
Gold Medal, Exposition des Sciences Appliquées à L'Industrie, 1879.  
Both Gold and Silver Medals, The International Health Exhibition, London.  
England, 1884.

To Military Men and Others.



### PICKERING'S

For whitening all articles of Buff or Buckskin Leather, such as Military Equipments, White Helmets, Gloves, Cricket and Tennis Shoes, Tennis Balls, Hunting Thongs, Whips, and a multitude of similar articles. Removes stains and discolorations, and ensures evenness of color, and a soft silky surface of glossy satin-like appearance.



### "BLANCO"

Capt. Charles W. Hobbs, 8d Artillery, United States Army, writes us:—I very fully and gladly recommend "Blanco" as an admirable article for whitening Helmets, Buff and Buckskin Leather Gloves and for all the uses for which it is offered.

Lieut. Wm. Weigel, U. S. Infantry:—The "Blanco" is A. No. 1.

Lieut. Geo. A. Thomas, Cincinnati Light Inf'y, writes:—Enclosed please find \$6.00, for which please send me "Blanco."

"Blanco" has met with royal success in this village and the prospects are good for a large order for this excellent article.

Sergt. H. R. Schnebely, U. S. M. C.:—The "Blanco" cannot be beat by white lead or pipe clay, either in price or quality.

Sergt. Geo. W. Tillotson, N. G., S. N. Y.:—I tried "Blanco" on one of our Helmets very much soiled, it brought it out very nice and white.

Hugh Swanton, Sioux City:—It is the best stuff I ever used.

To be had of Military Equipment Houses, Dealers of Sporting Goods,

or of P. HAYDEN, Newark, N. J., Sole Agent for the U. S.

—Sole Agent for the Chiswick Soap.—

# THE IMPROVED LEFEVER.

THE COLUMNS OF THE LEADING SPORTING PAPERS  
HAVE FOR YEARS BEEN RECORDING THE

**Successes of the Lefever Gun at the Trap  
and its Triumphs as a Prize-Winner.**

**THE LEADER  
OF ALL HAMMERLESS GUNS.**

All guns have New Designs of Engine  
Turned Rib, just completed.

**ANY WEIGHT OR GAUGE.**

We are now prepared to deliver guns, hav-  
ing our New Lock-cocking Safety Device.

10 and 12 Gauge.

**\$80 to \$400.**

**SIMPLE! DURABLE! EFFECTIVE!**



*The only Gun in the world with Compensated Action to take up wear in every direction. The best balanced, most symmetrical, and strongest gun made. Has an unexcelled record for perfect shooting. Special attention given to boring for trap and pigeon shooting. All guns made on the taper system, giving the greatest penetration, and even distribution of shot.*

**NEW MEDIUM PRICED.**



**Ideal.**

**THE LEFEVER ARMS CO.,**

Syracuse, N. Y.

In writing mention this Journal.

This second cut represents our new hammerless gun. This special gun is built to meet the requirements of sportsmen not prepared to buy our higher grades. It is known as "Ideal" or "G" grade.

This is a first-class gun in all its appointments, having

**DAMASCUS STEEL BARRELS.**

Our new Engine-Turned Rib, English Walnut Stock, Full Pistol Grip, has Line Engraving, our new action and all late improvements.

**SEND FOR NEW CATALOGUE.**

F. J. HEIBERGER,  
Army & Navy  
◀MERCHANT TAILOR▶

OFFICERS' OUTFITTINGS,

535 FIFTEENTH STREET,

Opposite the U. S. Treasury.

WASHINGTON, D. C.

ESTABLISHED 1851.

---

GOLD MEDAL,  
Atlanta, Ga.

TOP-O-CAN  
BRAND OF

GOLD MEDAL,  
New Orleans, La.

DIAMOND CREAMERY BUTTER

Packed at our own Creameries  
directly from the churn into hermetically Sealed Tins, for hot climates and  
all interior points and mining districts.

SIZES OF TINS, 1, 2, 3, 5, AND 7 LB., NET WEIGHTS.

SIMPSON, McINTIRE & CO.,

SILVER MEDAL,  
Melbourne, Aust.

27 So. Market St., Boston, Mass., U.S.A.

ESTABLISHED 1816.

HORSTMANN BROS. & CO.,  
*Fifth and Cherry Streets,*  
PHILADELPHIA,

MANUFACTURERS OF

**MILITARY EQUIPMENTS.**

.....  
*Officers' Outfits a Specialty.*  
.....

Our New Illustrated Catalogue and Price List  
is now ready.

THE PRATT & WHITNEY CO.

MANUFACTURERS OF

Gun- and Sewing-Machine Machinery,

MACHINE TOOLS of all kinds for use in Machine Shops and by Railroads—Gauges, Taps, Dies and Reamers. U. S. Standard Taps and Dies a specialty.

SEWING-MACHINE AND GUN MANUFACTURERS

fitted out with approved plants for producing finished goods, including all necessary Machinery, Tools, Fixtures, Gauges, etc.

We also manufacture the celebrated

**PRATT & WHITNEY IMPROVED GARDNER MACHINE GUN,**  
which has a firing capacity with two barrels of FIVE HUNDRED SHOTS PER MINUTE, and with four barrels ONE THOUSAND SHOTS PER MINUTE; mounted on tripod or carriage. We would call the attention of MILITARY men to this GUN, to whom we shall be pleased to furnish further information on application. Its extreme SIMPLICITY, DURABILITY, and STRENGTH, should recommend it above all others. Circulars, Illustrated Catalogues, and Price-lists sent upon application to

THE PRATT & WHITNEY CO.,  
Hartford, Conn., U. S. A.



# BOOKS

## Standard Books.

## Bindings.

## Books for Young People

## School Book Department.

## Grammars, Dictionaries, Readers, etc.

## Reference Books, Year Books, Atlases, and Encyclo-pædias.

## Out-of-Town People.

## Our Subscription Department.

## How to keep Posted on what is Appearing in the Literary World.

We invite attention to our immense stock of Books, in all Departments of Literature, embracing the classic and standard authors, current Fiction, Belles-Lettres, and a complete collection of French Literature, Standard Spanish, Italian, and German writers.

Good Books ought to be in good bindings. We enlist the best skill of American, French, English, and German binders, and accordingly our designs embrace the best productions of the leading workmen. We make also a specialty of binding books issued in parts, music, or binding newspapers and periodicals, and we bind these works as plainly, cheaply, or as luxuriously as may be desired.

A magnificent assortment of Books for young people, suitable for Young Folks of all ages and comprehending all the standard Children's Books, Fairy Tales, the Monotint Books and in short a complete display of the best Juvenile Literature extant. Children's Books in the French Language also.

We keep on hand constantly College and School Books, and we are able to fill all orders expeditiously and at advantageous prices. Catalogues cheerfully sent upon request.

Our list of works used for the acquirement and study of French, German, Spanish, or any of the foreign languages, is the most complete in the United States. Prices very moderate. Send for our catalogue of this stock. We cheerfully answer any inquiries from people whose suggestions or advice as to the best book to use in particular studies.

It is often a matter of difficulty to put your hand on the best Reference Book on any particular subject. We have made a study for years of giving the most intelligent and thoroughly accurate information to all parties applying for this class of books. For this reason we invite correspondence from those desiring any knowledge concerning the object, character and scope of any work that they contemplate purchasing. Anything you need in the way of Books of Quotations, the best Encyclopædias, the Political Almanacs, the best Atlases, Works on Science, Art, or Hand-books of General Information, as to what the different books on the same subject explain; School Atlases, Charts of History, Statistical Atlases, Financial Almanacs, Dramatic Year Books, Art Annuals, Commercial Atlases, Railroad Manuals, Year Books of Science or Trade, and in any language of any country.

For the convenience of out-of-town people, we have prepared at great expense a special holiday number of Book Chat, wherein we have catalogued, under proper subject classification, the standard and new books in Fiction, History, Science, Reference Books, etc. This list is the most comprehensive ever published within the same amount of space. A copy of Book Chat containing list will be sent on receipt of ten cents.

This is a leading Department of our business. Periodicals devoted to the Sciences, Arts, Fashions, Literature, or any department of human thought can be selected from our immense and varied list of Newspapers and Periodical Literature. All Papers and Magazines wherever published can be subscribed to through us, and sent to any address, at the same price as at the office of publication. We are special agents for American and Foreign Publications.

This is very simple. Subscribe to Book Chat. One dollar a year.

## BOOK CHAT

"Is simply of incalculable value to any one who, by reason of his or her profession, or for other causes, may require an instantaneous reference to any topic treated upon in the publications issuing from day to day. The ability to keep posted upon what is appearing on any special subject, whether in the form of books, or as an article in Magazine or Periodical literature, is given to any one who will subscribe to BOOK CHAT. It gives a synopsis of all books; an index to all periodical literature, properly classified under subjects; and, in addition, a complete survey of new books in all departments of literature."—*New York Evening Telegram.*

Address,

# BRENTANO'S,

Also of

1015 Pennsylvania Ave., Washington, D. C.  
204-206 Wabash Avenue, Chicago, Ill.  
17 Avenue de l'Opéra, Paris.  
430 Strand, LONDON.

5 Union Square,

New York.





# R. C. BROWN & CO.

DISTRIBUTING AGENTS OF

## STRAITON & STORM'S CIGARS

21 MURRAY STREET, New York.

*Special Attention of the Army is called to the fact that we are  
Headquarters for their needs in our line. We men-  
tion a few of our leading brands of*

### CIGARS.

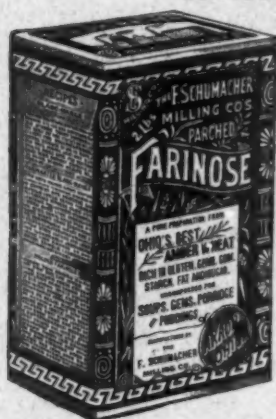
Price Lists sent on application.

Satisfaction Guaranteed at all times.

ACME,	GAYO,	PINNACLE,
AFTER DINNER,	GRAYLING,	POLICE,
ALPHA,	GUINDON,	PRINCEPI,
AURANIA,	HALF SHELL,	PURF,
BLOOM OF YOUTH,	HAVANA PUFF,	RAMON ALPHONSO,
BOB'S CIGARROS,	HENRY LEE,	R. C. B. & Co.'s BOUQUET,
" O. F.	KEY WEST,	R. C. B. & Co.'s Clear Havana,
" INVIGORATORS,	KID GLOVE,	R. C. B. & Co.'s Grand Londres,
BOSTON CUT-OFFS,	LA AGILIDAD,	RED RIBBON,
BOUQUET,	LA CELADA,	RESOLUTION,
BROWN'S BOYS,	LA CONFIDENCIA,	ROBERT BURNS,
BROWN'S GIRLS,	LA CORONA,	ROSE FRAGRANCE,
CABANAS,	LA FLOR DE BROWNERO,	ROSA SAN JAGO,
CALIDAD,	LA FLOR ISABELLA,	ROYAL OWL,
CALL AGAIN,	LAGER,	SAPPHO,
CAPADURA,	LA MULO,	S. S. S. S.
CHEROOTS,	LA PALOMA,	SEDATIVE,
CHAUNCEY M. DEPRW,	LA ROSE FRAGRANTE,	SILK WEAVERS,
CHURRUCA,	LA ROSE BRITANNICA,	STOORM'S STRAIGHT TEN,
CLEOPATRA,	LA ROSITA,	STOORM'S INFANTES,
COCKTAIL,	LATEST WRINKLE,	ST. GEORGE,
COKALIE,	L'ENVOIE,	STUNFLOWER,
CZAR,	LITTLE LORDS,	S. & S. BEST HALF DIME,
DIGNITY,	MANUEL GARCIA,	TABLE D'HOTE,
EAGLE,	MERCURIO,	TEA ROSE,
EL ABSEQUEOS,	MIRANDA,	THE GREAT TURF,
EL BOCO,	MUM,	THE DAISY,
ELMA,	NATALIE,	TICKER,
EL REY CUBANO,	NUMBER THREE,	TOM MOORE,
EL SOBRANO,	NUN NICER,	TOO TOO,
EQUIVALENT,	NEW YORK CUT-OFF'S	U NO ME,
ETIQUETTE,	OLD GUARD,	VINDICATOR,
FACTORY, No. 11,	OLD MASTER,	VIVA,
FAULTLESS,	OLD TIMES,	WHIFFS,
FIGARO,	OUR COUSINS,	WHOA EMMA,
FIRST NATIONAL,	OUR DADDIES,	WIDOW,
FLOR DE YUCLAN,	OUR KEY WEST,	YACHT CLUB,
FLOR D'ENID,	OWL,	YUM YUM,
FLORIDINA,	PACIFIC,	ZERLINA,
FORGET-ME-NOT,	PART,	ZILLAH.

Any of the above can be secured through the Commissary Department or direct from us.

# The F. SCHUMACHER MILLING CO., AKRON, OHIO.



MANUFACTURERS OF

## ROLLED AVENA (OATS),

PUT UP IN BARRELS AND CASES, 36 PACKAGES, 2 LBS. EACH.

**ALWAYS PURE!**

**ALWAYS RELIABLE!**

OATMEAL, ROLLED AND CRACKED WHEAT, WHOLE  
WINTER WHEAT AND W. W. GRAHAM FLOUR,  
HOMINY, WHITE AND YELLOW  
GRANULATED CORNMEAL.

Have recently added to their long list, a new Cereal of inestimable value to those suffering from impaired digestion.

Rich in gluten, germ, gum and dextrine, it is favorably received everywhere under the name and trade-mark

### Schumacher's Parched Farinose!

For infants it may well supersede all other foods (save milk, which can never find a perfect substitute during the first weeks of life), because its ready and perfect digestion involves no strain upon feeble digestive powers. It contains all the elements demanded by the growing life, and for like reasons is equally adapted for invalids. By fever patients it is used as a thin gruel and is partaken with some relish, even when genuine appetite and all craving for food are suspended. Its bland, mucilage-like qualities peculiarly adapt it to all inflammatory conditions, especially in typhoid and other states in which intestinal lesions exist which are liable to be increased by irritating food. For the **Brain Worker** it will be found satisfying and helpful, because of its high phosphatic qualities. For all refined, active, ardent, progressive human beings, it will prove a **PERFECT FOOD**, supplying all waste and restoring every exhausted energy. Added to all its excellences, its appetizing flavor will commend it to the palates of man, woman and child alike.

#### AGENTS.

CHAS. MUNS, 41 Water St., N. Y.  
POTTER & WRIGHTINGTON, Boston.

J. J. STEINER, 5 South Front St., Philadelphia.  
J. B. INDERRIEDEN & BRO., Chicago.







# STATE OF WASHINGTON DEPOSITORY OF SECURITIES.



## OFFICERS AND DIRECTORS:

Hon. E. O. GRAVES, President,  
ex-Asst. U.S. Treas.  
Hon. H. BOSTWICK, Vice-Prest.  
L. C. GILMAN, Counsel.  
I. HILL CASE, Gen'l Mangr.  
H. W. CASTLEMAN, Secretary.  
Hon. T. V. EDDY.  
W. L. GAZZAM.  
Col. Jas. HAMILTON LEWIS.

THE WASHINGTON NATIONAL BANK, TREASURER.

## AMONG OUR STOCK HOLDERS IN THE U. S. ARMY ARE:

Lieut. C. B. Baker, Los Angeles, California.  
Capt. Francis Moore, Ft. Leavenworth, Kansas.  
Adrian S. Polhemus, M. D., Old Ft. Comfort, Virginia.  
Capt. Chas. W. Miner, Ft. Totten, N. Dak.  
Lieut. M. R. Peterson, Ft. Union, N. M.  
Lieut. Ernest Hinds, Ft. Preble, Portland, Me.

*For detailed information address,*

I. HILL CASE, GEN'L MANAGER.

## B. P. CRITCHELL & CO.

- General - Florists - and - Seedsmen -

GROW ALL THE BEST SORTS IN

ROSES, CLEMATISES, \* \*  
CHRYSANTHEMUMS AND PLANTS  
Of Every Description.

Imported and native grown SEEDS, FLOWER and  
VEGETABLE, of the most reliable sorts. BULBS for both  
Fall and Spring planting. Our fine Descriptive Catalogue  
sent to all officers and Army Posts free on application.

SPECIAL PRICES ON LOTS FOR LARGE PLANTINGS OR ARMY CLUBS.

ADDRESS:

B. P. CRITCHELL & CO., Elm St., Cincinnati, O.

# FAIRBANK CANNING CO.

Union Stock Yards



Chicago, Illinois.

PACKERS AND PRESERVERS OF MEATS.

"LION BRAND" CANNED MEATS.

<i>Corned Beef,</i>	<i>English Brawn,</i>	<i>Potted Tongue,</i>
<i>Roast Beef,</i>	<i>Whole Ox Tongues,</i>	<i>Potted Ham,</i>
<i>Boiled Beef,</i>	<i>Lunch Tongues,</i>	<i>Deviled Ham</i>
	<i>Etc., Etc.</i>	

"Lion Brand" Soups are a Delicacy. Try them.

THIS COMPANY has extensive Government contracts at home and abroad, and the "LION BRAND" has won medals for superiority in all parts of the world.

## The RUDOLPH WURLITZER CO. CINCINNATI, O.



Offer to the Officers and Men of the U. S.  
Army and Navy special discounts  
and prices on

**Musical Instruments**

AND

**STRINGS**

OF EVERY DESCRIPTION.

**BAND AND ORCHESTRA MUSIC.**



**PIANOS AND ORGANS.**

Catalogues furnished on application.



## HUCKINS' SOUPS

TOMATO,  
OX-TAIL,  
PEA,  
CHICKEN,  
VERMICELLI.

OKRA OR GUMBO,  
GREEN-TURTLE,  
MOCK-TURTLE,  
JULIENNE,  
BEEF,

MACARONI,  
CONSOMMÉ,  
SOUP AND BOUILLI,  
TERRAPIN,  
MULLAGATAWNY.

**RICH AND PERFECTLY SEASONED.**

Require only to be heated,  
and are then ready to serve.

Prepared with great care  
from only the best materials.

Have enjoyed the highest repu-  
tation for more than 32 Years.

**TEST FREE**

Send us 20 cents, to help pay express, and receive, pre-  
paid, two sample cans of these Soups, your choice.

J. H. W. HUCKINS, SOLE MANUFACTURERS,

SOLD BY ALL LEADING GROCERS.

BOSTON, MASS.

FEW EQUAL! NONE BETTER!  
**BURPEE'S SEEDS**  
**PHILADELPHIA.**  
Elegant Illustrated Farm Annual for 1891, mailed *Free*.

# GRAND HOTEL,

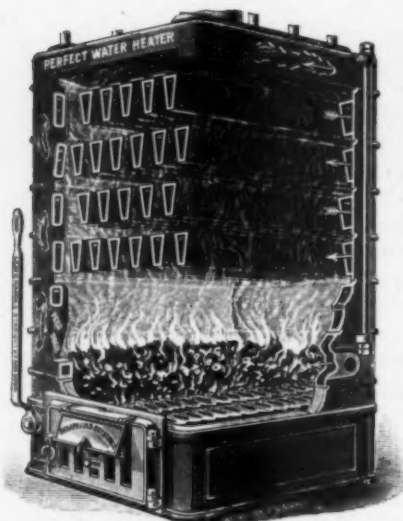
BROADWAY AND THIRTY-FIRST STREET,

NEW YORK.

HENRY MILFORD SMITH & SON.

— SEE —

WHAT 2½ CENTS PER ROOM PER DAY  
WILL DO.



LANSING, KANSAS.

RICHARDSON & BOYNTON CO.

GENTS: Referring to the No. 5 Perfect Hot Water Heater put in my residence last fall would say, I find it Economical, Powerful, Effective and Satisfactory. It is connected with 12 radiators. I use soft coal. Heating 12 rooms twenty-four hours per day in very cold weather at the trifling cost of 2½ cents per room per day.

Would be pleased to show any person who wants to keep an even temperature, at a small cost of fuel and labor, this system.

Yours,

T. P. GAMBLE.

## THE "PERFECT" HEATER

is the most powerful Water Heater ever constructed.

SEND FOR CIRCULARS, ETC.

**RICHARDSON & BOYNTON CO.**

**232 & 234 Water Street, New York.**

**84 Lake Street, Chicago.**

ALSO MANUFACTURERS OF THE CELEBRATED

**RICHARDSON & BOYNTON CO.'S**

**Furnaces, Fireplace Heaters and Ranges**

USED SO LARGELY IN THE VARIOUS ARMY POSTS IN THE U. S.



SIXTH AVENUE  
20th TO 21st ST.  
NEW YORK



MILLINERY  
DRESS GOODS  
COSTUMES & CLOAKS  
SILKS  
HOSIERY

Gents Furnishing  
Gloves.  
Boys Clothing.  
House Furnishing.  
China and Glassware  
Upholstery Goods.  
Curtains and Rugs.

Our Fall and Winter Catalogue ready Sept. 1st. Sent free upon application.

## ✧ USEFUL BOOKS ✧

**NUTTALL'S STANDARD DICTIONARY** of the English Language. A new Illustrated Edition revised, extended, and improved throughout. *Principal Features:* New Clear Type, 100,000 References, containing all New Words introduced into common parlance, Science and Literature. It is an Etymological dictionary, giving Derivatives and meaning of all root words. It is illustrated, contains alphabetical tables of pronunciation of over 10,000 Classical, Geographical and Scriptural names, with essays on the pronunciation of the European languages; French, German, Italian and Spanish names, with remarks on vowels, consonants, quantities and accents. It has alphabetical lists of Familiar Phrases, Classical Quotations, Proverbs, Maxims, Quotations, and mottoes from the Latin, French and Italian, with suitable translations; abbreviations used for dispatch in writing, meanings of initial letters used in titles, honors, etc., etc. **HANDIEST LEXICON IN THE WORLD.** In large crown 8vo, 922 pages, cloth, \$1.00; or cloth, indexed, \$1.50; or half French morocco, indexed \$2.50.

**THE LITTLE GIANT ENCYCLOPEDIA**, and Treasury of Ready Reference: comprising 82 Colored Maps and Charts, 2500 Useful Tables, Recipes, Trade Secrets, Business Forms, Statistics, Political History and Information, Atlas and Gazetteer, Legal Advice and Forms, etc., etc., in Full Morocco Binding, Gold Stamping, Red Edges, \$1.00 per copy.

**MRS. PARKER'S COMPLETE HOUSEKEEPER.** This is an entirely new work of nearly 500 pages and a large number of illustrations. It embodies the ripe experience of a veteran housekeeper, and its recipes (of which there are great numbers on all branches of cookery) can be relied upon as accurate and trustworthy. Beautifully Bound in Extra Cloth, \$1.50.

**HOW TO BE YOUR OWN LAWYER** is the title of an entirely new book of over 500 pages, adapted for use in every State and Territory in the Union, and is by far the best and most complete work of the kind ever published. Plain and concise directions are given and forms furnished for the transaction of all kinds of business, and the preparation of every description of legal document in common use. Handsomely Bound in Extra Cloth, with Ink Side-stamp, \$1.50. Any of the above books mailed to any address on receipt of the Price. We pay the postage.

Address all orders to

**CLARK & ZUGALLA, Publishers,**

33, 35, 37 GOLD STREET, NEW YORK.

Circulars mailed on application.



Almost goes alone.

## What there is to know about Lamps.

All the care it wants is filling and wiping; five minutes a day is enough for that; no knowledge or skill required—the Pittsburgh.

There are a dozen other central-draft lamps, all troublesome, foul by habit, with dirt-pockets, hard to clean, offensive in smell, exacting, perplexing—one must serve an apprenticeship at them—but they were excellent lamps last year.

The Pittsburgh pours forth a flood of mellow light, as much as eighty candles together, and costs two-thirds of a cent an hour for oil, the lamp itself from \$2.50 to \$50, according to style—the cheapest as good as the costliest—not so pretty—best in the world. It is indeed a wonderful lamp, and costs no more than the troublesome ones.

You can see it at any good store where lamps are sold—a store six months behind is not a good store.

Two sizes: one for family use, to hold three pints of oil and burn twelve hours; the other for public use, to hold a gallon, burn eleven hours, and give the light of three-hundred candles.

Three kinds of family lamps as to holders: vases, twenty-inch stands for the dining table, five-foot stands for the floor.

We will send you a primer; but buy of your neighbor merchant.



**Pittsburgh Brass Company,**  
PITTSBURGH, PA.







ESTABLISHED 1837.

# ROBERT SHOEMAKER & CO.

PHILADELPHIA.

IMPORTING AND MANUFACTURING . . . . .

## \* \* \* DRUGGISTS AND CHEMISTS.

—IMPORT—

OLIVE OIL, Finest Quality for Table Use.

WHITE CASTILE SOAP,

BENBOW'S ELDER FLOWER & WINDSOR SOAPS,

also a full line of other choice English and French Soaps and Perfumery.

### MANUFACTURERS OF

ABSOLUTELY PURE SPICES AND FLAVORING EXTRACTS,

in all their variety.

POWDERED VANILLA BEAN, (for Culinary Purposes).

This line of goods claim our best attention, and will be kept up to the highest grade of excellence.

## Johnston's Fluid Beef.

This is a thoroughly well prepared **Extract of Beef**, combined with 20 per cent. of fresh beef, dessicated, and then reduced to an impalpable powder. It is claimed, and the claim is admitted by all who have made comparative tests, that this preparation of beef possesses greater *nutritive* qualities than any other extract of meat yet offered.

We append the analysis made by

WM. HARKNESS, F. C. S. L., Analytical Chemist to the British Government.

LABORATORY, Somerset House, London, Eng.

I have made a very careful chemical analysis and microscopical examination of JOHNSTON'S FLUID BEEF, and find it to contain in every 100 parts:

Moisture, . . . . .	26.14
Albumen and Gelatine, . . . . .	21.81
Fibrine in a readily soluble form, . . . . .	37.48
Ash or Mineral Matter, . . . . .	14.57—100.00.
Nitrogenous or flesh-forming food.	

"The mineral matter is rich in phosphates. The microscopical examination shows the FLUID BEEF to contain good, sound beef, ground to a very fine powder. There is not the slightest trace of fungus, spores, or any other organism which would tend to produce decomposition. I consider this a most valuable preparation, combining, as it does, a concentrated Extract of Beef with the solid beef itself,—the latter being in a form easily digested."

Differing in all essential points from other Meat Extracts in the Market.

### —A PERFECT FOOD—

For the healthy or the invalid. Unequalled for Beef Tea, Bouillon, Soups or Sauces.

GENERAL AGENTS FOR UNITED STATES,

ROBERT SHOEMAKER & CO.,

PHILADELPHIA.

## THE SHAM AND THE REAL.

---

Every good thing has its hosts of imitators ; every genuine article its counterfeits. And imitators always choose the most pronounced, valuable or popular subject to counterfeit, so that when they claim their sham to be equal, or as good, or the same as "So-and-So's," the public may depend upon it that "So-and-So's" article is the best of the kind. The sham is always proving the genuine merit of the thing it copies.

The Royal Baking Powder Company have produced and popularized an article of household use, whose convenience, usefulness and real merit have made for it an immense and universal sale. A hundred imitators arise on every hand, and as they hold out their sham articles to the public, they cry in chorus, "Buy this ; its just as good as the Royal, and much cheaper !"

The Royal Baking Powder is the standard of excellence the world over, and its imitators in their cry that theirs is "as good as Royal" are all the time emphasizing this fact. In their laborious attempts to show that their goods are as strong, as wholesome, or as pure as the Royal, by their contortive twistings of chemical certificates and labored efforts to obtain recognition from the Government chemists and prominent scientists who have certified the superiority of Royal over all others, by their copying even the style and wording of the Royal advertisements, they all admit the "Royal" to be the acme of perfection, which it is their highest ambition to imitate.

But the difference between the real and these imitations, which copy only its general appearance, is as wide as that between the paste and the true diamond. The shams all pay homage to the "Royal !"